Turner (TX)	Wamp	Whitfield
Udall (CO)	Waters	Wicker
Udall (NM)	Watson	Wilson (NM)
Upton	Watt	Wilson (SC)
Van Hollen	Waxman	Wolf
Velazquez	Weiner	Woolsey
Visclosky	Weldon (FL)	Wu
Vitter	Weldon (PA)	Wynn
Walden (OR)	Weller	Young (AK)
Walsh	Wexler	Young (FL)

NOT VOTING—15

Boehner	Emanuel	McKeon
Carson (IN)	Gephardt	Miller, Gary
DeGette	Hayes	Pomeroy
DeLay	Hinchey	Simpson
Dingell	Hyde	Tauzin

ANNOUNCEMENT BY THE SPEAKER PRO TEMPORE

The SPEAKER pro tempore (during the vote). Members are advised there are less than 1½ minutes left to vote.

□ 1238

So (two-thirds having voted in favor thereof) the rules were suspended and the concurrent resolution was agreed to.

The result of the vote was announced as above recorded.

A motion to reconsider was laid on the table.

Stated for:

Mr. EMANUEL. Mr. Speaker, on rollcall No. 164, I was unavoidably detained. Had I been present, I would have voted "yes."

REMOVAL OF NAME OF MEMBER AS COSPONSOR OF H.R. 2

Mrs. MUSGRAVE. Mr. Speaker, I ask unanimous consent to have my name removed as a cosponsor of H.R. 2.

The SPEAKER pro tempore. Is there objection to the request of the gentlewoman from Colorado?

There was no objection.

NANOTECHNOLOGY RESEARCH AND DEVELOPMENT ACT OF 2003

Mr. LINDER. Mr. Speaker, by direction of the Committee on Rules, I call up House Resolution 219 ask for its immediate consideration.

The Clerk read the resolution, as follows:

H. RES. 219

Resolved, That at any time after the adoption of this resolution the Speaker may, pursuant to clause 2(b) of rule XVIII, declare the House resolved into the Committee of the Whole House on the state of the Union for consideration of the bill (H.R. 766) to provide for a National Nanotechnology Research and Development Program, and for other purposes. The first reading of the bill shall be dispensed with. All points of order against consideration of the bill are waived. General debate shall be confined to the bill and shall not exceed one hour equally divided and controlled by the chairman and ranking minority member of the Committee on Science. After general debate the bill shall be considered for amendment under the five-minute rule. It shall be in order to consider as an original bill for the purpose of amendment under the five-minute rule the amendment in the nature of a substitute recommended by the Committee on Science now printed in the bill. Each section of the committee amendment in the nature of a substitute shall be considered as read. During consideration of the bill for amendment, the Chairman of the Committee of the Whole may accord priority in recognition on the basis of whether the Member offering an amendment has caused it to be printed in the portion of the Congressional Record designated for that purpose in clause 8 of rule XVIII. Amendments so printed shall be considered as read. At the conclusion of consideration of the bill for amendment the Committee shall rise and report the bill to the House with such amendments as may have been adopted. Any Member may demand a separate vote in the House on any amendment adopted in the Committee of the Whole to the bill or to the committee amendment in the nature of a substitute. The previous question shall be considered as ordered on the bill and amendments thereto to final passage without intervening motion except one motion to recommit with or without instructions.

The SPEAKER pro tempore. The gentleman from Georgia (Mr. LINDER) is recognized for 1 hour.

(Mr. LINDER asked and was given permission to revise and extend his remarks.)

Mr. LINDER. Mr. Speaker, for the purpose of debate only, I yield the customary 30 minutes to the gentleman from Florida (Mr. HASTINGS), pending which I yield myself such time as I may consume. During consideration of this resolution, all time yielded is for the purpose of debate only.

Mr. Speaker, H. Res. 219 provides for the consideration of H.R. 766, the Nanotechnology Research and Development Act. H. Res. 219 provides for one hour of general debate, equally divided and controlled by the chairman and ranking minority member of the Committee on Science. The rule waives all points of order against consideration of the bill and makes in order the amendment in the nature of a substitute recommended by the Committee on Science now printed in the bill as an original bill for the purpose of amendment. It further provides that the bill shall be considered for amendment section by section and that each section shall be considered as read. Finally, the rule provides one motion to recommit, with or without instructions.

Mr. Speaker, H. Res. 219 is an open rule giving all Members of the House the opportunity to offer any germane amendments to H.R. 766. This rule accords priority in recognition to Members who have preprinted their amendments in the CONGRESSIONAL RECORD. This is to simply encourage Members to take advantage of the option in order to facilitate consideration of amendments on the House floor and to inform Members of the details of any pending amendments.

Mr. Speaker, H.R. 766 is an important, bipartisan bill that will encourage further nanotechnology research. A recent National Academy of Sciences review described nanotechnology as the "relatively new ability to manipulate and characterize matter at the level of single atoms and small groups of atoms. This capability has led to the astonishing discovery that clusters of small numbers of atoms or molecules often have properties, such as strength, electrical resistivity, electrical conductivity, and optical absorption, that are significantly different from the properties of the same matter at either the single molecule scale or the bulk scale."

Beyond this technical description, nanotechnology has the potential to have a significant impact on our lives in the coming years. Testimony before the Committee on Science, chaired by the gentleman from New York (Chairman BOEHLERT), indicated that in the future the American people could see great advances in medicine, manufacturing, materials, construction, computing and telecommunications as a result of this research. Yesterday in the Committee on Rules the gentleman from New York (Chairman BOEHLERT) and the ranking member, the gentleman from Texas (Mr. HALL) identified potential homeland security advantages as well, including information technology and sensor advances to assist us in our efforts to identify threats.

President Bush has recognized the benefits of these innovations in terms of practical applications to the American people and also to our Nation's economic growth. The National Science Foundation has predicted that the nanotechnology market could reach $1 trillion by the year 2015. But we should recognize that there will be competitors in this arena from abroad.

In an effort to ensure the benefits of this research for our citizens and for future job growth, President Bush has asked Congress to expand the nanotechnology initiative and increase funding for this emerging technology, providing grants to researchers and establishing research centers and advanced technology user facilities.

The Associate Director for Technology in the Office of Science and Technology Policy stated that the administration's commitment to furthering nanotechnology research and development has never been stronger.

I applaud the President for focusing on this potential link to future economic growth. I thank the gentleman from New York (Chairman BOEHLERT), the gentleman from California (Mr. HONDA) and the Committee on Science for forwarding a bill that will result in better planning and coordination in this area of research.

This is a very fair rule. I urge my colleagues to support the rule so we may begin on any amendments that Members may have to offer before the House today.

Mr. Speaker, I reserve the balance of my time.

Mr. HASTINGS of Florida. Mr. Speaker, I yield myself such time as I may consume.

I thank the gentleman from Georgia for yielding me the time, and I would also alert my friend from Georgia, as I understand it now, we have but one speaker, so we are prepared to move forward.

Mr. Speaker, I rise today in support of this bill and the open rule under which it is being considered.

□ 1245

When I think back to all of the times my friends on the other side of the aisle allowed an open rule this year, I do not have to think far, since it has only occurred once before during the 108th Congress. Therefore, Mr. Speaker, I am thankful for this full and open debate; and hopefully, this is a sign of what is to come.

Mr. Speaker, as I said, I rise today in support of the rule and H.R. 766, a bill to provide for a National Nanotechnology Research and Development program.

As my colleagues may know, nanotechnology is an emerging science that involves the engineering of extremely small materials, devices, and systems at the atomic, molecular, and macromolecular level. The science and technology of precisely controlling the structure of matter at the molecular level is widely viewed as the most significant technological frontier currently being explored.

This legislation is significant because it ensures continued U.S. leadership in nanotechnology research and coordination of nanotechnology research across Federal agencies and the private sector. This measure will provide grants to investigators, establish interdisciplinary research centers and advanced technology user facilities. It shall expand education and training of undergraduate and graduate students and establish a research program to identify societal and ethical concerns related to nanotechnology.

Additionally, this bill assembles a team of advisory and governing committees to work cooperatively with each of the national Federal science offices to achieve the goals and priorities set forth by this legislation and the Federal Government. Through the national nanotechnology research and development program, our Nation can and will continue to make advancements in virtually every industry and public endeavor, including health, electronics, transportation, the environment, and national security.

Moreover, this bill supports the National Nanotechnology Initiative outlined in 1999 by allowing us to reach beyond our natural size limitation and work directly with the building blocks of matter. It holds the promise for a new renaissance in our understanding of nature. It holds the promise, in addition, for means for improving human performance and a new industrial revolution in coming decades.

Mr. Speaker, I support H.R. 766 and this second open rule of the year. Perhaps that came about because of nanoseconds.

Mr. HASTINGS of Florida. Mr. Speaker, I yield back the balance of my time.

Mr. LINDER. Mr. Speaker, I yield back the balance of my time, and I move the previous question on the resolution.

The previous question was ordered.

The resolution was agreed to.

A motion to reconsider was laid on the table.

The SPEAKER pro tempore (Mr. LINDER). Pursuant to House Resolution 219 and rule XVIII, the Chair declares the House in the Committee of the Whole House on the State of the Union for the consideration of the bill, H.R. 766.

The Chair designates the gentleman from Nebraska (Mr. TERRY) as chairman of the Committee of the Whole and requests the gentleman from Texas (Mr. CULBERSON) to assume the chair temporarily.

□ 1250

IN THE COMMITTEE OF THE WHOLE

Accordingly, the House resolved itself into the Committee of the Whole House on the State of the Union for the consideration of the bill (H.R. 766) to provide for a National Nanotechnology Research and Development Program, and for other purposes, with Mr. CULBERSON (Chairman pro tempore) in the chair.

The Clerk read the title of the bill.

The CHAIRMAN pro tempore. Pursuant to the rule, the bill is considered as having been read the first time.

Under the rule, the gentleman from New York (Mr. BOEHLERT) and the gentleman from Texas (Mr. HALL) each will control 30 minutes.

The Chair recognizes the gentleman from New York (Mr. BOEHLERT).

GENERAL LEAVE

Mr. BOEHLERT. Mr. Chairman, I ask unanimous consent that all Members may have 5 legislative days within which to revise and extend their remarks on H.R. 766.

The CHAIRMAN pro tempore. Is there objection to the request of the gentleman from New York?

There was no objection.

Mr. BOEHLERT. Mr. Chairman, I yield myself such time as I may consume.

(Mr. BOEHLERT asked and was given permission to revise and extend his remarks.)

Mr. BOEHLERT. Mr. Chairman, I rise in strong support of H.R. 766, the National Nanotechnology Research and Development Act. As is the practice of the Committee on Science, this is a bipartisan piece of legislation that reflects the important contributions of both majority and minority members of the committee.

I am going to keep my remarks brief today because nanotechnology is a subject on which there is already broad agreement on both sides of the aisle, in the administration and, indeed, in the country at large.

Nanotechnology can be a key to future economic prosperity and might improve our lives, and the Federal Government has an important role to play in supporting the basic research that will make this possible.

Nanotechnology is the science of manipulating and characterizing matter at the atomic and molecular level. It is one of the most promising and exciting fields of science today, involving a multitude of science and engineering disciplines with widespread applications in electronics, advanced materials, medicine, and information technology. Nanotechnology represents the future of information processing and storage. Other future applications include new sensors to detect biological agents, stronger and lighter building materials, new cancer treatments, and more environmentally friendly chemical processes. Some have estimated that a $1 trillion global market for nanotechnology will develop in little over a decade.

With this in mind, I introduced H.R. 766 with the gentleman from California (Mr. HONDA) and with senior members of the Committee on Science on both sides of the aisle as cosponsors. The committee held two hearings on the bill, one on nanotechnology research programs and commercialization efforts, and one on societal and ethical concerns related to nanotechnology. The academic and industrial research communities were articulate in their support of this legislation and on the need to consider the societal, environmental, ethical, and economic questions that will arise as new nanotechnology applications are developed and enter the marketplace.

H.R. 766 authorizes the President's National Nanotechnology Initiative and supports and improves the Federal Government's nanotechnology efforts in a number of ways. It emphasizes interdisciplinary research, it strengthens interagency coordination, it supports increased research on societal consequences of nanotechnology, it encourages commercialization of nanotechnology applications, it requires outside reviews of the program, and it provides incentives for Americans to pursue degrees in science and engineering.

H.R. 766 builds on the excellent budgets that have been put forward by the administration for nanotechnology. It has been endorsed by leading industry groups, and that is very important. A companion bill, S. 189 sponsored by Senators WYDEN and ALLEN, is moving forward in the Senate; and I am optimistic that this bill will be sent to the President's desk in the near future.

In closing, I want to thank the gentleman from California (Mr. HONDA) and the gentleman from Texas (Mr. HALL) for their able leadership on this important piece of legislation. It has been a pleasure working with them, and their contributions have made this bill a better bill.

Mr. Chairman, I reserve the balance of my time.

Mr. HALL of Texas. Mr. Chairman, I yield myself such time as I may consume.

(Mr. HALL of Texas asked and was given permission to revise and extend his remarks.)

Mr. Chairman, of course I rise in support of this act. It authorizes an interagency research program that will

have enormous consequences for the future of our Nation. It is bipartisan legislation introduced in the Committee on Science by the gentleman from New York (Chairman BOEHLERT) and the gentleman from California (Mr. HONDA), who took the lead on it. It is cosponsored, of course, by Members from both sides of the aisle. This bill, which was ordered reported by a unanimous vote of the committee, will authorize the National Nanotechnology Initiative that is part of the President's budget request.

I want to acknowledge the leadership of the gentleman from New York (Chairman BOEHLERT), and I thank him for his leadership, and the gentleman from California (Mr. HONDA) in developing this legislation. I want to thank Chairman BOEHLERT for working very cooperatively with Democratic leaders and Members and moving the bill through the committee. I also want to thank the gentleman from California (Mr. HONDA) for his hard work on the bill. His efforts have led to a strengthening of the outside advisory mechanism for the research program and to a process to help facilitate the transfer of research innovations to commercial applications.

Mr. Chairman, the advancement of civilization has been tied to human capabilities to manipulate and fashion materials. For example, the Stone Age gave way to the Bronze Age, which, in turn, gave way to the Iron Age. The trend has been a better understanding of material properties at a smaller and more detailed level.

We know now that we stand at the threshold of an age in which materials can be fashioned atom by atom. As a result, new materials can be designed with specified characteristics to satisfy any of those specific purposes.

The word ''revolutionary'' has become a cliche, but nanotechnology truly is revolutionary. In the words of a report from the National Research Council: ''The ability to control and manipulate atoms, to observe and simulate collective phenomena, to treat complex materials systems, and to span length scales from atoms to everyday experience, provides opportunities that were not even imagined a decade ago.''

Nanotechnology will have enormous consequences for the information industry, for manufacturing, for medicine, and for health. Indeed, the scope of this technology is so broad as to leave virtually no product untouched.

The potential reach and impact of nanotechnology argues for careful attention to how it may affect society and, in particular, attention to particular downsides of the technology. While some concerns have already been raised that seem more in the realm of science fiction, there are also very real issues with the potential health and environmental effect of nanosized particles.

I believe it is important for the successful development of nanotechnology that potential problems be addressed from the very beginning in a straightforward and in an open manner. We know too well that negative public perceptions about the safety of a technology can have serious consequences for its acceptance and use. This has been the case with such technologies as nuclear power, genetically modified foods, and stem cell therapies.

Research is needed to provide understanding of potential problems arising from nanotechnology applications in order to allow informed judgments to be made by risks and cost-benefit trade-offs for specific implementations of the technology. Efforts must be made by the research community to open lines of communication with the public to make clear potential safety risks are being explored and not ignored.

We cannot once again go down the path where the research community simply issues a statement to the public: ''Trust us, it is safe.'' I am confident that this bill will help accomplish this goal.

My colleague, the gentlewoman from Texas (Ms. EDDIE BERNICE JOHNSON), will offer an amendment at the appropriate point to further strengthen this aspect of the bill.

Mr. Chairman, H.R. 766 authorizes $2.4 billion over 3 years for nanotechnology research and development at five agencies: the National Science Foundation, the Department of Energy, NASA, the National Institute of Standards and Technology, and EPA. In addition to setting funding goals, this bill puts in place mechanisms for planning and coordinating and implementation of interagency research programs.

The bill also includes provisions for outside expert advice to help guide the research program and ensure its relevance to emerging technological opportunities and to industry. The advisory committee required by the bill is charged to review the goals, the content, the implementation, and administration of the nanotechnology initiative. The bill provides the administration with the flexibility either to designate an existing advisory panel or to establish a new panel to carry out its role. It is important, I think, whatever approach is used, that the advisory committee encompass a range of expertise needed to assess the technological content of the initiative as well as the education, technology transfer, commercial application, and societal and ethical research aspects of this program.

□ 1300

Equally important, the advisory committee must focus sustained attention on the Nanotechnology Initiative over its lifetime in order to meet the comprehensive assessments required and the requirements specified by this legislation.

So I am pleased that H.R. 766 has identified the need for research to provide understanding of potential problems arising from nanotechnology applications. Annual reporting requirements, added by an amendment in committee by the gentleman from California (Mr. SHERMAN) and the gentleman from Texas (Mr. BELL), will allow Congress to track the agencies' activities that are related to societal and ethical concerns.

A problem that was identified in the Committee on Science's hearings on the bill is the difficulty that can arise in transitioning results from nanotechnology research into actual products and commercial applications. The gentleman from California (Mr. HONDA) successfully proposed an amendment in committee that will help address the problem through greater use of the Small Business Innovation Research Program and the Small Business Technology Transfer Research Program.

Finally, Mr. Chairman, as is clear from the hearing record for H.R. 766, this bill enjoys widespread support from the research community and from industry. This is an important bill. It will help ensure the Nation maintains a vigorous research effort in a technology area that is emerging as increasingly important for the economy and for national security.

Mr. Chairman, I urge my colleagues to support its final passage.

Mr. Chairman, I reserve the balance of my time.

Mr. BOEHLERT. Mr. Chairman, I yield 3 minutes to the gentleman from Michigan (Mr. SMITH), the distinguished chairman of the Subcommittee on Research.

Mr. SMITH of Michigan. Mr. Chairman, what is nanotechnology? I think it is amazing. The chairman did not use a hair off of his head as an example, but nanotechnology is 1/100,000th the size of a normal human hair.

What we are talking about has a tremendous potential for industry, for science, for the health of this Nation. So it is the beginning, if you will, of a new revolution. It involves 13 Federal agencies in this new National Nanotechnology Initiative. This technology is still very much in its early stages.

Only a handful of nanotechnology products and applications have been commercialized today. Most Americans have probably yet to even hear about this exciting new era of science. So what exactly is this technology that will likely make such a profound impact on our lives and the lives of our kids and our grandkids?

The bill before us today defines nanotechnology as science and engineering at the atomic and molecular level. More specifically, it is the manipulation, if you will, of materials with structural features that are so tiny that it involves chemistry to develop some of the machines that we saw in our Subcommittee on Research that can even manipulate and transport a dust mite. In our hearings on the

future of medical technology, they estimate that within 30 years the life span of the average American could be 120 years old, partially because of the potential of nanotechnology, putting small rockets in one's bloodstream to hunt out certain discrepancies in the human body.

The National Science Foundation has estimated that nanotechnology has the potential to be a $1 trillion industry within just the next 10 years. This will take shape in the form of revolutionary new applications in materials, in science, in manufacturing, energy production, information technology, medicine, defense, homeland security. Imagine the benefits of just one example of a future nanoscale tool, tiny machines that can detect cancer clusters.

But like biotechnology or information technology 10 to 15 years ago, nanotechnology has reached a critical growth stage. For these emerging innovations to come to fruition, it is important for us in Congress to work, proactively to provide support and guide the industry, and that is what this bill does.

We found that we will need to intensify our support for research and experimentation in the nanosciences, specifically fundamental, novel research.

Mr. Chairman, I urge my colleagues to vote for this legislation.

If the information technology revolution is any guide, the coming nanotechnolgy revolution will not only improve our lives through the development of many exciting new products, but its contribution to productivity gains will also help brighten future economic situations. As the Semiconductor Industry Association has pointed out, the Congressional Budget Office (CBO) estimation of the $1.3 trillion projected deficit for fiscal years 2004–2013 would actually be $247 billion higher if it were not for CBO's assumption of continued improvements in productivity due to computers. If we succeed in our effort to harness the potential of nanotechnology, we will see productivity and revenue gains of a similar magnitude.

I am proud that my home State of Michigan is poised to one of the leaders in this effort. As the state struggles to cope with job losses in manufacturing industries, we have been working to establish a high-tech corridor to attract companies in emerging industries such as nanotechnology. In fact, Small Times magazines recently ranked Michigan as one of the top ten states for nanotechnology businesses in the country. This is the kind of foresight that will help our State recover from the dramatic losses in the manufacturing sector.

I also want to mention that, as Chairman of the Research Subcommittee, which maintains oversight of the National Science Foundation, I am particularly excited about NSF's contribution to the nanotech initiative. NSF is the largest federal supporter of non-medical basic research conducted at universities, and has a long history of supporting research that has led to a myriad of discoveries now part of our everyday lives. At a support level of $221 million for FY 2003, NSF is funding the cutting-edge, fundamental research at our nation's universities that will help to accelerate application and commercialization of nanotechnology products by the private sector. The goals and priorities for the NNI established in H.R. 766 will be an important aspect of this process.

To conclude, that is a strong, well-thought out piece of legislation. It received unanimous bi-partisan support from the Science Committee, is supported by the pertinent industry organization that have an interest in nanotechnology, and finally, is the top science and technology priority of the President. I commend Chairman Boehlert for his leadership in crafting this bipartisan bill, and urge all members to support the legislation.

Mr. HALL of Texas. Mr. Chairman, I yield 5 minutes to the gentleman from the Silicon Valley of California (Mr. HONDA). I have already explained his importance to this legislation, his background and his ability to lead the development of nanotechnology. I am glad to recognize him as one of authors of this bill.

(Mr. HONDA asked and was given permission to revise and extend his remarks.)

Mr. HONDA. Mr. Chairman, I rise in strong support of H.R. 766, the Nanotechnology Research and Development Act of 2003. I would like to thank very, very much the distinguished leaders of the Committee on Science, the gentleman from New York (Mr. BOEHLERT) and the ranking member, the gentleman from Texas (Mr. HALL), for working with me on this bipartisan bill which was approved unanimously by our committee.

Most people have probably never heard of the term nanotechnology but they will surely see its impact in the future. Nanotechnology refers to the ability of scientists and engineers to manipulate matter at the level of single atoms and molecules.

It has been said just previously that the size is 1/100,000th of the width of a hair or, if you can imagine, one-billionth of a meter. Nanotechnology has the potential to be the making of a revolution because it can be an enabling technology, fundamentally changing the way many items are designed and manufactured. This may lead to advances in almost every conceivable technological discipline, including medicine, energy supplies, the food we eat, and the power of our computers.

The National Science Foundation predicts the worldwide market for nanotechnology products and services to be somewhere in the neighborhoods of $1 trillion by the year 2015. In today's business climate, the demand for short-term returns prevents companies from investing in long-term, high-risk work, which advancing nanotechnology will require.

Therefore, the Federal Government is one of the few investors that can take a long-term view and make the sustained investments that are required to bring the field to maturity.

Our bill continues to follow the positive trend of Federal investment in nanotechnology R&D begun by President Clinton, who created the National Nanotechnology Initiative, and President Bush, who has continued to support the program.

Under the NNI, 13 Federal agencies work together on nanotechnology, but each continues to run its own research program. A National Research Council study found that this approach leads to problems with coordination between agencies. Our bill addresses this concern by establishing an interagency committee on nanotechnology R&D and establishing a National Nanotechnology Coordination Office.

The study also found that the current structure of NNI provides little chance for voices outside the Federal agencies to be heard in the agenda setting process. Our bill addresses this by establishing an advisory committee that will draw upon members of the academic and industrial communities.

I am confident that the qualifications established in the bill and accompanying report will ensure that the advisers have the technical expertise in nanotechnology necessary to perform this job.

Nanotechnology's interdisciplinary nature presents another challenge, since the field transcends traditional areas of expertise. Our bill supports the establishment of interdisciplinary research centers, ensures that grant programs encourage interdisciplinary research and will expand education and training in interdisciplinary nanoscience and engineering.

In addition, nanotechnology will likely give rise to a host of novel social, ethical, philosophical and legal issues. We have a unique opportunity to think about those possible issues that might arise before they become problems, and I feel it is our duty to do so.

Similar opportunities were missed in the fields of molecular genetics and the development of the Internet, and now we wrestle with issues such as genetic screening, privacy and intellectual property.

Our bill addresses this duty in two ways: First, it establishes a research program to identify societal and ethical concerns and ensures that the results of this research are widely disseminated.

Second, it charges the nanotechnology advisory committee with the responsibilities of assessing whether this program is adequately addressing the issues and providing advice on these issues.

One of our hearing witnesses reminded us that it is not enough to focus only on basic research, but also that the Federal Government should take steps to promote the commercialization of nanotechnology.

I am pleased that at the markup the committee adopted my amendment to develop a plan for commercializing nanotechnology using the Small Business Innovation Research Program and the Small Business Technology Transfer Research Program. These programs represent significant Federal investment in technology development and commercialization by small firms, exactly the type of entrepreneurial firms

where most nanotechnology is occurring.

This is an excellent bill. I am proud to have had the chance to work on it. I urge my colleagues to support it. Mr. Chairman, I want to thank the leadership again, the gentleman from New York (Mr. BOEHLERT) and the ranking member, the gentleman from Texas (Mr. HALL), on this wonderful bill.

Mr. BOEHLERT. Mr. Chairman, I have additional requests for time, but those requesting the time are not yet here.

Mr. Chairman, I reserve the balance of my time.

Mr. HALL of Texas. Mr. Chairman, I yield 5 minutes to the gentleman from California (Mr. SHERMAN), a very valuable member of our committee.

Mr. SHERMAN. Mr. Chairman. I thank the gentleman for yielding me time. I will try to drag out my speech as long as necessary so that the chairman's speakers will have time to arrive on this floor.

Mr. Chairman, small is big. Nanotechnology is very small, roughly the size of a molecule, and very small is going to be very big. Nanotechnology really encompasses virtually all of the cutting edge science that will pretty much determine our future this century, because it includes what is being done in genetic engineering, what is likely to be done in computer engineering, and it includes the molecular manufacturing dealing with a host of new products created molecule by molecule.

Nanotechnology offers the possibility, I think the probability, of solving most of the problems that we wrestle with here on the floor such as energy and health care. But if it is able to do that, it will also create even more challenging problems.

Nanotechnology will operate below the surface for quite some time until the basic technological and scientific challenges are met. But once we are able to manipulate matter at the molecular level, there will be an explosive impact on our society.

The last such explosion was the development of nuclear power and nuclear weapons. Einstein and others wrote to President Roosevelt in 1939, describing the possibility of nuclear fission, and in less than a decade we as a species had to deal with the realities of nuclear weapons not only in the hands of America but other countries as well. That is why it is so important that this bill includes not only scientific research, but also every possible effort to deal with the societal implications that arise from this technology.

I want to commend the gentleman from New York (Mr. BOEHLERT) and the gentleman from Texas (Mr. HALL), the ranking member, for the bipartisan approach and the very reasoned approach taken during the markup of this bill to make sure the bill includes mechanisms to examine the societal impacts.

I bring just one of those impacts to your attention, and that is the creation of new levels of intelligence, whether that is done through what is sometimes referred to as wet nanotechnology, that is to say, genetic engineering; or whether it is done through what is sometimes called dry nanotechnology, computer engineering. Either of those two approaches may well create levels of intelligence that may be our protector, may be our competitor, or may simply regarded us as pets, or it may change our definition of what it is to be a human being.

□ 1315

Before we confront questions of that type, it is important that this bill, as it does, provides mechanisms for us to get input from a wide range of society because while these issues will not confront us this decade, it will take us more than a decade to see how we can deal with them.

I see that other speakers have arrived so my effort to stall has been successful, and I want to yield back my time just after I make one comment, and that is I understand that there are four amendments that will be offered today. I do not know if they will all be offered, but each of them is designed to enhance the bill further by having us take a look at the societal implications of nanotechnology, and I would hope that each such amendment would be perhaps accepted without a rollcall vote so that this bill can move over to the other body in the best possible form.

Mr. HALL. Mr. Chairman, I yield 3 minutes to the gentlewoman from Dallas County, Texas (Ms. EDDIE BERNICE JOHNSON), my neighbor.

Ms. EDDIE BERNICE JOHNSON of Texas. Mr. Chairman, I rise in support of this bill and feel that it is really our next step for scientific discovery, and I want to thank our chairman and ranking member for the open and bipartisan manner in which this committee operates.

We do have potential for enormous consequences, and most of the real breakthrough research has come under the leadership of this committee throughout the last 2 or 3 decades. This bill could cause a great deal of brightness for the future in terms of studying the small particles and determining how it might lead us to another breakthrough.

I do value the public input, and I will be offering an amendment later, but I feel that the public should have some way to have some involvement. More and more we have more people getting involved in the public debate, asking questions and attempting to clarify what is going on, and often good scientific procedures interrupt it because we have an uninformed public and people who feel they have been left out; and because of that, I feel very strongly that we should have some type of offering for the general public to have input, to listen to the witnesses when there is a hearing, so that they can feel a part of this.

This is going to be publicly financed, and we are hoping that this would eliminate some of the suspicion and paranoia that often comes from very honest and interested people simply because they do not know what is going on.

I think that it would add a valuable asset to this legislation. I am going to support it whether or not the amendment is adopted, but I do feel that that is the one thing we have left out, that it can be of great value to this legislation and, more importantly, to the process of this research.

The area from which I have come will be a leader in some of this research, and I am from a pretty highly educated, involved community that will be asking these questions, and we have a lot of demonstrators that will be marching to find out what is going on. I think we can eliminate much of this with a simple amendment that allows for some type of public input as we move along into this new area of broadening of the activity in this new area of nanotechnology.

I thank the leadership of the committee and the Members for working so closely together.

Mr. BOEHLERT. Mr. Chairman, I am pleased to yield 3 minutes to the gentlewoman from Illinois (Mrs. BIGGERT), the distinguished Chair of the Subcommittee on Energy.

Mrs. BIGGERT. Mr. Chairman, I thank the chairman for yielding to me.

Mr. Chairman, as on original cosponsor of H.R. 766, the Nanotechnology Research and Development Act, I rise today to express my strong support for this bill. I want to commend the gentleman from New York (Mr. BOEHLERT), the chairman of the Committee on Science; and my committee colleague, the gentleman from California (Mr. HONDA), for developing such a comprehensive and forward-looking piece of legislation.

Unlike so many other complex scientific concepts, nanotechnology is actually something we all should be able to grasp. Most Americans learn in grade school and high school that atoms are the building blocks of nature. In the years since I was in school, incredible machines have allowed us even to see every one of those items. The challenge now is to develop the tools, the equipment and expertise to manipulate those atoms and build new materials and new machines one molecule at a time.

This bill takes up that challenge, ensuring coordination and collaboration among the many Federal agencies engaged in nanotech research. Unlike other research efforts, some of which are undertaken for the sake of science and our understanding of it, the broad and practical application of nanotechnology and its benefits can be described in laymen's terms. Here are just a few benefits:

Sensing the presence of unwanted pathogens in blood; improving the efficiency of electricity distribution; dispensing medication; cleaning polluted soil and water; or building the next

generation of spacecraft one molecule at a time.

I do not think I am being overly optimistic. Just consider how far we have come since the creation of the first microchip. Sixty percent of Americans now own a personal computer or a laptop, and 90 percent of them use the Internet. The public, private and nonprofit sectors invested in research that reduces the size of the microchip while increasing its speed exponentially. This investment was made because the applications were many and the possibilities endless. After all, microchips are now found in cars, pacemakers, watches, sewing machines, and just about every household appliance.

With all its potential applications, nanotechnology could have an equal, if not greater, impact than the microchip on our lives, our wealth, our health and safety, our environment and our security at home and abroad. All levels of government, academia, and industry recognize the potential of nanotechnology, as well as the benefits of collaborating to realize that potential. Nanotechnology could very well be the catalyst for national competitiveness for the next 50 years. In countless ways, our lives will be better as a result of coordinated investment in nanoscience research and development.

I urge my colleagues to join me in supporting H.R. 766, the Nanotechnology Research and Development Act.

Ms. HART. Mr. Chairman, I rise today in support of H.R. 766, the Nanotechnology Research and Development Act of 2003. This bill, which passed by voice vote out of the full committee, would authorize a national nanotechnology research initiative that coordinates research across agencies and emphasizes interdisciplinary research between academic institutions and national laboratories or other partners, which may include States and industry. The bill also authorizes $2.36 billion over 3 years for nanotechnology research and development programs at the National Science Foundation, the Department of Energy, the Department of Commerce, NASA, and the Environmental Protection Agency.

Western Pennsylvania is blessed with two major universities, University of Pittsburgh and Carnegie Mellon University, which are doing great work in the field of nanotechnology. The University of Pittsburgh has established the Institute of NanoScience and Engineering, which is a multidisciplinary organization that brings coherence to the University's research efforts and resources in the fields of nanoscale science and engineering. At the institute work is ongoing in the areas of: nanotube and nanorod self-assembly; hydrogen storage in carbon nanotubes; semiconductor nanostructures; and many other interesting areas.

Carnegie Mellon University also has a nanotechnology center, the Center for Interdisciplinary Nanotechnology Research. This center was established because various types of research were ongoing throughout the university, and could be a focal point and gateway for the distribution of nantechnology information. Their efforts include: nanowires; magnetic nanocrystals and noncomposites; and nonporous materials.

Mr. Speaker, this legislation will provide Federal dollars to continue this necessary research and development into this expanding area of science, and provide the necessary coordination to ensure that this information is brought to the market.

Mr. SMITH of Texas. Mr. Chairman, I support H.R. 766, which authorizes a national nanotechnology research initiative. This bill funds more research into this ''small science'' that does big things.

As a science, nanotechnology is crucial to the future of information technology. As a benefit for the average person, nanotechnology has already led to applications that can be used on a daily basis, such as hard transparent coating for eyewear, nano-enhanced computer chips, and drugs more easily absorbed by the human body. Each innovation serves as a building block for new directions and applications. The possibilities are as endless as the human imagination.

Continued research plays an important role in the further development of nanotechnology. This science is still in its infancy and it will take many years of sustained investment and investigation for this field to achieve maturity.

Nanotechnology has evolved from advances in chemical, physical, biological, engineering, medical, and materials research. It will continue to contribute to the science and technology workforce for years to come.

The National Science Foundation predicts nanotechnology will represent $1 trillion in global goods and services in little over a decade. According to a study of international nanotechnology research efforts sponsored by the National Science and Technology Council, the United States is at risk of falling behind its international competitors, including Japan, South Korea, and Europe, if it fails to sustain broad based interests in nanotechnology.

H.R. 766 authorizes $2.36 billion in research and development funding. This legislation establishes new technology goals and research directions, coordinates nanotechnology programs through federal agencies, universities across the country, and high-tech companies, to assure America's continued ability to lead the global exploration of nanotechnology.

Mr. CASTLE. Mr. Chairman, it is with great pride that I rise today to support H.R. 766, the Nanotechnology Research and Development Act of 2003, and to express my excitement for the groundbreaking research that is taking place at the University of Delaware. In October of 2002, the National Science Foundation awarded the University a $2.5 million grant to study manmade microscopic particles and structures and their possible uses.

Widely acclaimed as the wave of the future, nanotechnology is the ability to manipulate and control materials at the atomic and molecular levels to design new applications that create and use structures, devices, and systems which posses novel properties and functions due to their small and/or intermediate size. This technology will allow us to create a device that carries medicine to exactly where it is needed in the body, methods to detect cancerous tumors only a few cells in size, or satellites so light, costs are drastically reduced for NASA. This is truly the technology of tomorrow.

The State of Delaware has the opportunity to play a pivotal role in the exciting development of this cutting-edge research. This legislation and federal funding award will allow the university to continue to be in the forefront of this field, and will assure that Delaware is actively involved in the advancement of tomorrow's technology.

Mr. MCNULTY. Mr. Chairman, I thank and compliment my friend and neighbor from New York, Mr. BOEHLERT, on his leadership and foresight in shepherding this landmark legislation to the floor today.

I rise in strong support of H.R. 766, the Nanotechnology Research and Development Act of 2003. I urge my colleagues to support it as well.

The science of nanotechnology—the study of materials at the scale of a single molecule—is still in its earliest stages, but its promise and potential are already well known and well documented.

I am confident that further research and development in the science of nanotechnology will continue to bring about new products and processes that will benefit our lives and society for generations to come.

I am also confident that passing H.R. 766 and reaffirming our commitment to nanotechnology will create jobs and help stimulate the economy. Mr. Speaker, we're talking about an industry that could reach $1 trillion annually in market size by the year 2015.

I am pleased to report that the State of New York has become a hub of hi-tech industry, particularly nanotechnology. I am proud of the commitment we've put forth—and the results that have been achieved—in the 17-county region in the eastern third of New York State known as, ''Tech Valley.''

In 2001, as part of the National Nanotechnology Initiative, the National Science Foundation established six nanoscale science and engineering centers at research and learning institutions of the highest caliber. Mr. Speaker, three of these centers are located in New York State—at Columbia University, Cornell University, and at the Nation's oldest engineering university, Rensselaer Polytechnic Institute, located in Troy, and in New York's Tech Valley.

In fact, New York's Capital Region is home to not one, but two state-of-the-art nanotechnology research and development facilities.

On the opposite side of the Hudson River from PRI's Nanotechnology Center sits Albany NanoTech, on the campus of the University at Albany, part of the State University of New York.

Like the RPI facility, Albany NanoTech is a global research, development, technology and education resource supporting commercial applications in advanced nanotechnology.

Together, Albany NanoTech and the Rensselaer Nanotech Center at RPI have Federal, State and private investments totaling nearly $1 billion. They have established relationships with hundreds of industrial partners from all around the world. They will play integral roles in major Tech Valley initiatives such as Sematech North, the IBM Partnership and the Tokyo Electron Partnership.

I'm most pleased to report that both of these stellar facilities are located in my congressional district.

Mr. Chairman, the work being undertaken at these two world-class facilities is nothing short of amazing. I'd like to offer the following sample of cutting-edge nanotechnology research projects underway at the Rensselaer Nanotechnology Center and at Albany NanoTech.

Researchers are adding ceramic nanoparticles—particles 100 times smaller than a human hair—to existing plastic materials, modifying their chemical and physical properties in an effort to make them exponentially stronger, and make them insulators, rather than conductors, of electricity. These adaptations dramatically increase the commercial value and viability of the resulting nanocomposite materials, which will be used to develop products such as scratch-resistant medical imaging film coatings and energy-efficient insulation for electrical power distribution cables.

Scientists at the Rensselaer Center have used nanotechnology to incorporate enzymes into surfaces to produce coatings that protect things such as the hulls of ships, implanted medical devices, even personal protection equipment—helping to safeguard individuals against chemical and biological agents.

Research in nanotechnology is also leading to significant breakthroughs in biomedicine. For example, nanostructured materials have been found to mimic natural bone, causing a specific response in living cells to enhance bone growth and regeneration in humans.

The final project I will mention developed a relatively simple assembly of carbon nanotubes—which are basically rolled up layers of carbon that can be used like chopsticks or placed in a row—to discover methods of filtration that can efficiently purify water in a manner that could help solve many of the world's potable water problems.

And this is just the tip of the iceberg.

Mr. Chairman, we are entering an exciting new era of technology. H.R. 766, the Nanotechnology Research and Development Act, is essential to provide further momentum to the breakthroughs brought about in the past 4 years by the National Nanotechnology Initiative.

I am truly excited that New York's 21st Congressional District, the heart of New York's Tech Valley, is already one of the world's primary centers for nanotechnology and other hi-tech industry. These industries will continue to spur economic growth and development not only in New York's Capital Region, but also all across the United States in the years to come.

Mr. Chairman, let us continue to lead the world in this important endeavor. I urge my colleagues to support H.R. 766.

Mr. WU. Mr. Chairman, I rise in strong support of H.R. 766, the Nanotechnology Research and Development Act. I believe this piece of legislation is extremely important to our Nation's future scientific research efforts and urge my colleagues to support H.R. 766.

For the past decade, Oregon has been growing as a progressive and growing area for technological research. In the Portland metropolitan area, we have two major research universities and a large number of high technology companies. As their representative in Congress, I believe H.R. 766 would strengthen our Nation's nanotechnology research efforts and help translate today's research efforts into future technology that will benefit all Americans.

This piece of legislation establishes grants for a national nanotechnology research and development effort. The interdisciplinary research centers authorized by H.R. 766 will serve as major centers of excellence and innovation. As an example, I would like to mention one of the public institutions in my district, the Portland State University's Center for Nanoscience and Nanotechnology. The center conducts particularly interesting nanotechnology research and will help transition today's research efforts into real benefits for future American consumers.

During Science Committee consideration of H.R. 766, one of the amendments I jointly offered with Mr. SMITH of Michigan, Ms. HART of Pennsylvania, and Mr. MATHESON of Utah, would facilitate public and private partnership on research efforts and help utilize regional assets in the development of technology. I strongly hope that future research efforts will be collaborative in nature and take into consideration the many regional scientific and research expertise we have throughout the country.

Mr. AKIN. Mr. Chairman, I rise today in support of H.R. 766, the Nanotechnology Research and Development Act of 2003.

The promise of nanotechnology is great. As research in nanotechnology continues, we will seek breakthrough advances affecting a broad field of scientific and commercial endeavor.

In my own State of Missouri, several academic institutions are engaged in nanotechnology research. At the University of Missouri-Rolla, a large group of faculty members from diverse fields are actively researching several aspects of nanoscience and engineering that primarily focus on micropower, nanostructured materials and nanosensors. Since the early 90s, the chemistry and physics departments at Washington University in St. Louis have collaborated in making various nanowires and nanotubes that might ultimately be incorporated into nanoelectronic devices.

Nanotechnology research has the potential to create revolutionary products in the field of electronics, pharmaceuticals and military defense. It is an important investment in the future of America's economy, and I applaud Chairman BOEHLERT and the professional staff of the Science Committee for bringing this important legislation to the floor today.

Mr. FERGUSON. Mr. Chairman, we stand at the dawn of a new era, one that holds the promise to revolutionize life as we know it by developing new cures for diseases as debilitating as cancer and creating powerful new computers the size of a wristwatch. It is critically important for this country to seize this opportunity and harness this potential. That is why our efforts here today, while only the first step, are so important to ensure our country serves as the world's proving ground for this revolutionary advance in science.

H.R. 766 serves as a bridge to this bright future. This legislation meets the promise of broadening our economic future. The President's commitment to nanotechnology mirrors the commitment President Kennedy made to the space program, and I believe the research we support today will reap benefits to mankind beyond any of our wildest dreams.

Nanotechnology is the next scientific frontier, the future of computer science and medicine and yet, nanotechnology is rooted in today—the here and now.

In Murray Hill, New Jersey, in my district, Lucent Technologies, Bell Laboratories serves as the hub for the New Jersey Nanotechnology Consortium, which will manage the New Jersey Nanotechnology Laboratory. Our State, like many others, is ready to partner with the Federal Government to make these research initiatives a reality.

Here in the Congress we have a responsibility and obligation to support ways to stimulate economic growth. The promise of nanotechnology is also about job creation and the National Science Foundation has predicted that the worldwide nanotechnology market could reach $1 trillion in approximately 12 years, which could translate into as many as 7 million new jobs.

What we do today and in the future in this House, in regards to nanotechnology, may stand as the legacy to the 108th Congress.

Mr. MATHESON. Mr. Chairman, nanotechnology presents incredible opportunities, not just for pure science, but for a host of interdisciplinary areas. The wide range of potential applications of this research is one of the best reasons why we, as a nation, should commit to long-term support of nanotechnology. Many of the most exciting ideas are still years from completion and even the current success stories are products of long-term research, study, and dedication.

It is also important to realize that, due to the expense of establishing top-level research infrastructure, facility sharing must also be a priority. We have an opportunity to promote relevant, needed research and every effort should be made to best utilize limited resources. I look to the national laboratories at Sandia National Laboratories, Oak Ridge National Laboratory, and at other sites to avail themselves of the scientific talent within this nation.

Finally, there exists a tremendous opportunity for today's research commitment to become tomorrow's commercial success. We need partnership between federally funded research facilities and private industry in order to generate the ideas that will drive business in the future. I thank the Committee for its interest in this area of science and look forward to contributing to the national discourse on nanotechnology.

Mr. COSTELLO. Mr. Chairman, I rise in strong support of H.R. 766, the Nanotechnology Research and Development Act of 2003. H.R. 766 authorizes $2.36 billion over three years for nanotechnology research and development programs at the National Science Foundation, the Department of Energy, the Department of Commerce, NASA, and the Environmental Protection Agency. In addition, this legislation establishes a research program to address societal and ethical concerns.

Nanotechnology can best be considered as a ''catch-all'' description of activities at the level of atoms and molecules that have application in the real world. A variety of nanotechnology products are already in development or on the market, including stain-resistant, wrinkle free pants and ultraviolet-light blocking sunscreens.

A unique feature of nanotechnology is that it is the one area of research and development that is truly multidisciplinary. Research is unified by the need to share knowledge on tools and techniques, as well as information on the physics affecting atomic and molecular interactions in this new realm. Materials scientists, mechanical and electronic engineers and medical researches are now forming teams with biologists, physicists and chemists.

Illinois is among the leaders in nanotechnology. During the last few years, success in the areas of nanotechnology at Southern Illinois University-Carbondale (SIUC) has included patented technology for conversion of

carbon dioxide into methanol and sensors to detect corrosion and stress in highway bridges. SIUC has also developed industrial partnerships and collaborations with IBM, Proctor & Gamble, and Argonne National labs to further research and development at the atomic and molecular scale.

Increased understanding of nanotechnology promises to underlie revolutionary advances that will contribute to improvements in medicine, manufacturing, high-performance materials, information technology, and environmental technologies. I strongly support this legislation and urge my colleagues to do the same.

Ms. ESHOO. Ms. Chairman, I rise in strong support of H.R. 766 and I thank the Chairman of the Science Committee Mr. BOEHLERT and my Silicon Valley colleagues Reps. HONDA and LOFGREN for their work in bringing this important bill to the floor of the House.

Recent history indicates that the investments in research and development made by the federal government have benefited our nation considerably. The federal government provided seed money for the research that led to the development of the Internet, the web browser, and cracking the genetic code, these investments have spawned a decade of economic prosperity and promise, increased productivity, and hundreds of thousands of American jobs.

In fact the federal government has served as a venture capitalist by making investments in nascent technologies that have generated companies who maintain our national technological and scientific predominance.

This legislation builds on that tradition by authorizing over $2.3 billion dollars in federal funding for nanotechnology, the science of creating and manipulating objects at molecular levels.

In Silicon Valley nanotechnology is already being used to develop new types of semiconductors, medical devices, and sensors that detect environmental and other types of hazards.

Progress in this field has been hampered by a lack of trained scientists which is why this bill and the investment we make today is absolutely essential. This funding will help to produce the next generation of great American scientists.

The NSF has estimated that the market in products that carry nanocomponents could reach $1 trillion by the next decade.

The seed money we provide today will go a long way to ensuring that the nanotechnology market, which is poised to be the next big thing in the technology industry, will also be the next big AMERICAN thing.

I urge my colleagues to support this bill.

Ms. JACKSON-LEE of Texas. Mr. Chairman, I would first just like to thank you and Ranking Member HALL for bringing this excellent bill to us today. I would also like to comment our colleague from California, Mr. HONDA for his great leadership on the issue of nanotechnology. I was pleased to be a cosponsor of his bill HR 5669 to make a Nanoscience advisory board in the last Congress, and this one today.

Nanotechnology holds great promise for bringing about substantive improvements in quality of life for people in America and around the world. It is critical that as this field emerges, that American research and America industry remain at the cutting edge and in prime position to take advantage of market opportunities. We also must ensure that as new technologies and products—in healthcare, in communications, in energy—come about that they impact on all of the American population.

In Science Committee markup last week, I offered two amendments that I believe will help make that happen. One amendment will capitalize on the great expertise and skills of our nation's Historically Black Colleges and Universities, and Universities serving large numbers of Hispanics, Asian-Pacific Islanders and other under-represented minorities. It is critical that the research initiative we are designing takes advantage of schools like Texas Southern University, in my District in Houston, and their excellent College of Science and Technology. We must also harness the productivity of collaborative efforts like that in South Carolina, where seventeen teams of scientists and engineers from around the state are working together on research projects including treatments to cancer and materials for solar-powered space exploration. That Collaborative Research Program provides an opportunity for research faculty at Clemson and USC to collaborate with faculty from the state's four-year and Historically Black Colleges and Universities (HBCU) to take nanotechnology to the next level.

This amendment will also help make sure the next generation of leaders in this important field, in academics and industry, will reflect the diversity of America.

My other amendment from Science Committee will help ensure that nanotechnology advances bring about real improvements in quality of life for all the American people, not just the select few. It was a small wording change that makes a profound statement of commitment to the well-being of all Americans.

As we go forward today, I hope we make this bill all it can be: maximizing the efficiency and effectiveness of federal investments, spurring on this exciting field, and ensuring the promise that it will produce good for all people. There are excellent amendments to be considered from some of my Democratic Colleagues on the Science Committee, especially those from my fellow Texans.

One of the Bell amendments will make this federal program much more proactive by addressing the potential toxicity of nanoparticles, to protect the health of Americans. The other will make it more likely that advances in nanotechnology improve our nation's energy security.

The Johnson amendment will create citizen panels to discuss societal/ethical implications of nanotechnology and to inform the research agenda, so that research reflects the concerns of the American people—not only academics and scientists.

I will offer an amendment that creates a Center for Societal, Ethical, Educational, Workforce, Environmental, and Legal Issues Related to Nanotechnology. That will give that important research a home at the NSF, so that integrated research in the field will be better disseminated and accessible to all interested people.

I urge my colleagues to support these amendments.

Mr. DEFAZIO. Mr. Chairman, the University of Oregon has a well-established nanotechnology program that along with its partners at Oregon State University occupies a special niche in the field of nanoscience research.

The University of Oregon is working closely with Oregon State University to put nanotechnology to work in real micro systems with applications in sensors for human safety, reactors for reduced environmental impact, more efficient energy sources, life saving medical devices, and integrated circuits for the next generation of computers and communications systems. The legislation speaks to the need to apply nanoscale research to microscale devices and will strengthen national research policy in support of such work.

Beyond that, the University of Oregon is pioneering research into inherently safer materials and manufacturing or ''green nanoscience''. Through deliberate design at the moelcular or nanoscale level, University of Oregon researchers aim to produce products and processes that pose dramatically less risk to human health than traditional manufacturing methods. The potential impact of nanotechnology derives from the fact that unprecedented material properties are being discovered in nanoscale materials. These properties can be harnessed to invent entirely new products and processes. UO researchers have already discovered new phenomena in nanoscience such as thermoelectric materials that present energy efficient, refrigerant-free cooling solutions and biomolecular lithography, a possible candidate for the ultimate minuritzation of electronic circuits and computers.

If nanotechnology is the both a path to the next industrial revolution and a source of concern about societal and ethical issues involving nanoscale research, then federal agencies should be proactive in funding research that seeks ways to develop materials and manufacturing methods that are inherently safer—less wasteful in their use of materials and energy, less harmful to human health and safety, and just as economical to produce.

Mr. STUPAK. Mr. Chairman, I rise in support of the Nanotechnology Research and Development Act of 2003. Science has revealed the far-reaching benefits of nanotechnology in recent years and I recognize the need for a more cooperative and focused approach.

I thank Science Committee Chairman BOEHLERT and Ranking Member HONDA for their efforts to advance nanotechnology applications and to call for today's authorization of important nanotechnology research and development, ethical oversight, and expert advisory.

In my northern Michigan district, we have been proud witness to nanosystems research at internationally renowned Michigan Technological University. Located in Houghton, Michigan, Michigan Tech hosts one of the nation's foremost nanotechnology research centers, the Center for Mico- and Nanosystems Technology.

Michigan Tech has long distinguished itself as a leader in science and engineering projects and now steams ahead in the development of nanostructure and lightweight materials. They have shown particular success with metal hydrides, to provide safer and more efficient storage of hydrogen for clean-burning hydrogen-powered vehicles—both civilian and military. These lightweight, durable nanotech materials could prove additionally valuable to NASA spacecraft construction.

Michigan tech has also engaged in research to enable miniature medical implant devices and other nano-sized health care products which will improve the quality and reduce the

cost of health care and lead to overall economic growth as additional breakthroughs are made in this vital area.

With continued funding and bolstered federal resources, Michigan Tech has all the tools in place for promising technological advances in a diversity of nanotechnology applications.

I will continue to urge Congressional appropriators to remember smaller universities when it comes to doling out the federal funds and research contracts we provide in this authorization today and in the future. Michigan Tech, while only enrolling a total student body of 6300, is consistently ranked second in the nation—to only Georgia Tech—as the premier public technological university.

I pleased with the opportunity to recognize Michigan Tech for their contribution to our national research efforts and to support this important science legislation.

Mr. HALL. Mr. Chairman, we yield back the balance of our time.

Mr. BOEHLERT. Mr. Chairman, I have no further requests for speakers, and I yield back the balance of my time.

The CHAIRMAN. All time for general debate has expired.

Pursuant to the rule, the bill is considered read for amendment under the 5-minute rule. The amendment in the nature of a substitute printed in the bill shall be considered by section as an original bill for the purpose of amendment, and pursuant to the rule each section is considered read.

During consideration of the bill for amendment, the Chair may accord priority in recognition to a Member offering an amendment that he has printed in the designated place in the CONGRESSIONAL RECORD. Those amendments will be considered read.

The Clerk will designate section 1.

The text of section 1 is as follows:

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 ''Nanotechnology Research and Development Act of 2003''.

The CHAIRMAN. Are there any amendments to section 1?

Mr. BOEHLERT. Mr. Speaker, I ask unanimous consent that the remainder of the committee amendment in the nature of a substitute be printed in the RECORD and open to amendment at any point.

The CHAIRMAN. Is there objection to the request of the gentleman from New York?

There was no objection.

The text of the remainder of the committee amendment in the nature of a substitute is as follows:

SEC. 2. DEFINITIONS.

In this Act—

(1) the term ''advanced technology user facility'' means a nanotechnology research and development facility supported, in whole or in part, by Federal funds that is open to all United States researchers on a competitive, merit-reviewed basis;

(2) the term ''Advisory Committee'' means the advisory committee established or designated under section 5;

(3) the term ''Director'' means the Director of the Office of Science and Technology Policy;

(4) the term ''Interagency Committee'' means the interagency committee established under section 3(c);

(5) the term ''nanotechnology'' means science and engineering aimed at creating materials, devices, and systems at the atomic and molecular level;

(6) the term ''Program'' means the National Nanotechnology Research and Development Program described in section 3; and

(7) the term ''program component area'' means a major subject area established under section 3(c)(2) under which is grouped related individual projects and activities carried out under the Program.

SEC. 3. NATIONAL NANOTECHNOLOGY RESEARCH AND DEVELOPMENT PROGRAM.

(a) IN GENERAL.—The President shall implement a National Nanotechnology Research and Development Program to promote Federal nanotechnology research, development, demonstration, education, technology transfer, and commercial application activities as necessary to ensure continued United States leadership in nanotechnology research and development and to ensure effective coordination of nanotechnology research and development across Federal agencies.

(b) PROGRAM ACTIVITIES.—The activities of the Program shall be designed to—

(1) provide sustained support for nanotechnology research and development through—

(A) grants to individual investigators and interdisciplinary teams of investigators;

(B) establishment of advanced technology user facilities; and

(C) establishment of interdisciplinary research centers, which shall—

(i) network with each other to foster the exchange of technical information and best practices;

(ii) involve academic institutions or national laboratories and other partners, which may include States and industry;

(iii) make use of existing expertise in nanotechnology in their regions and nationally;

(iv) make use of ongoing research and development at the micrometer scale to support their work in nanotechnology; and

(v) be capable of accelerating the commercial application of nanotechnology innovations in the private sector;

(2) ensure that solicitation and evaluation of proposals under the Program encourage interdisciplinary research;

(3) expand education and training of undergraduate and graduate students in interdisciplinary nanotechnology science and engineering;

(4) accelerate the commercial application of nanotechnology innovations in the private sector;

(5) ensure that societal and ethical concerns, including environmental concerns and the potential implications of human performance enhancement and the possible development of nonhuman intelligence, will be addressed as the technology is developed by—

(A) establishing a research program to identify societal and ethical concerns related to nanotechnology, and ensuring that the results of such research are widely disseminated;

(B) insofar as possible, integrating research on societal and ethical concerns with nanotechnology research and development, and ensuring that advances in nanotechnology bring about improvements in quality of life for all Americans; and

(C) requiring that interdisciplinary research centers under paragraph (1)(C) include activities that address societal and ethical concerns; and

(6) include to the maximum extent practicable diverse institutions, including Historically Black Colleges and Universities and those serving large proportions of Hispanics, Native Americans, Asian-Pacific Americans, or other underrepresented populations.

(c) INTERAGENCY COMMITTEE.—The President shall establish or designate an interagency committee on nanotechnology research and development, which shall include representatives from the Office of Science and Technology Policy, the National Science Foundation, the Department of Energy, the National Aeronautics and Space Administration, the National Institute of Standards and Technology, the Environmental Protection Agency, and any other agency that the President may designate. The Director shall select a chairperson from among the members of the Interagency Committee. The Interagency Committee, which shall also include a representative from the Office of Management and Budget, shall oversee the planning, management, and coordination of the Program. The Interagency Committee shall—

(1) establish goals and priorities for the Program;

(2) establish program component areas, with specific priorities and technical goals, that reflect the goals and priorities established for the Program;

(3) develop, within 6 months after the date of enactment of this Act, and update annually, a strategic plan to meet the goals and priorities established under paragraph (1) and to guide the activities of the program component areas established under paragraph (2);

(4) propose a coordinated interagency budget for the Program that will ensure the maintenance of a balanced nanotechnology research portfolio and ensure that each agency and each program component area is allocated the level of funding required to meet the goals and priorities established for the Program;

(5) develop a plan to utilize Federal programs, such as the Small Business Innovation Research Program and the Small Business Technology Transfer Research Program, in support of the goal stated in subsection (b)(4); and

(6) in carrying out its responsibilities under paragraphs (1) through (5), take into consideration the recommendations of the Advisory Committee and the views of academic, State, industry, and other appropriate groups conducting research on and using nanotechnology.

SEC. 4. ANNUAL REPORT.

The chairperson of the Interagency Committee shall prepare an annual report, to be submitted to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate at the time of the President's budget request to Congress, that includes—

(1) the Program budget, for the current fiscal year, for each agency that participates in the Program, including a breakout of spending for the development and acquisition of research facilities and instrumentation, for each program component area, and for all activities pursuant to section 3(b)(5);

(2) the proposed Program budget, for the next fiscal year, for each agency that participates in the Program, including a breakout of spending for the development and acquisition of research facilities and instrumentation, for each program component area, and for all activities pursuant to section 3(b)(5);

(3) an analysis of the progress made toward achieving the goals and priorities established for the Program;

(4) an analysis of the extent to which the Program has incorporated the recommendations of the Advisory Committee; and

(5) an assessment of how Federal agencies are implementing the plan described in section 3(c)(5), and a description of the amount of Small Business Innovative Research and Small Business Technology Transfer Research funds supporting the plan.

SEC. 5. ADVISORY COMMITTEE.

(a) IN GENERAL.—The President shall establish or designate an advisory committee on nanotechnology consisting of non-Federal members, including representatives of research and

academic institutions and industry, who are qualified to provide advice and information on nanotechnology research, development, demonstration, education, technology transfer, commercial application, and societal and ethical concerns. The recommendations of the Advisory Committee shall be considered by Federal agencies in implementing the Program.

(b) ASSESSMENT.—The Advisory Committee shall assess—

(1) trends and developments in nanotechnology science and engineering;

(2) progress made in implementing the Program;

(3) the need to revise the Program;

(4) the balance among the components of the Program, including funding levels for the program component areas;

(5) whether the program component areas, priorities, and technical goals developed by the Interagency Committee are helping to maintain United States leadership in nanotechnology;

(6) the management, coordination, implementation, and activities of the Program; and

(7) whether societal and ethical concerns are adequately addressed by the Program.

(c) REPORTS.—The Advisory Committee shall report not less frequently than once every 2 fiscal years to the President on its findings of the assessment carried out under subsection (b), its recommendations for ways to improve the Program, and the concerns assessed under subsection (b)(7). The first report shall be due within 1 year after the date of enactment of this Act.

(d) FEDERAL ADVISORY COMMITTEE ACT APPLICATION.—Section 14 of the Federal Advisory Committee Act shall not apply to the Advisory Committee.

SEC. 6. NATIONAL NANOTECHNOLOGY COORDINATION OFFICE.

The President shall establish a National Nanotechnology Coordination Office, with full-time staff, which shall—

(1) provide technical and administrative support to the Interagency Committee and the Advisory Committee;

(2) serve as a point of contact on Federal nanotechnology activities for government organizations, academia, industry, professional societies, and others to exchange technical and programmatic information; and

(3) conduct public outreach, including dissemination of findings and recommendations of the Interagency Committee and the Advisory Committee, as appropriate.

SEC. 7. AUTHORIZATION OF APPROPRIATIONS.

(a) NATIONAL SCIENCE FOUNDATION.—There are authorized to be appropriated to the National Science Foundation for carrying out this Act—

(1) $350,000,000 for fiscal year 2004;

(2) $385,000,000 for fiscal year 2005; and

(3) $424,000,000 for fiscal year 2006.

(b) DEPARTMENT OF ENERGY.—There are authorized to be appropriated to the Secretary of Energy for carrying out this Act—

(1) $265,000,000 for fiscal year 2004;

(2) $292,000,000 for fiscal year 2005; and

(3) $322,000,000 for fiscal year 2006.

(c) NATIONAL AERONAUTICS AND SPACE ADMINISTRATION.—There are authorized to be appropriated to the National Aeronautics and Space Administration for carrying out this Act—

(1) $31,000,000 for fiscal year 2004;

(2) $34,000,000 for fiscal year 2005; and

(3) $37,000,000 for fiscal year 2006.

(d) 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) $62,000,000 for fiscal year 2004;

(2) $68,000,000 for fiscal year 2005; and

(3) $75,000,000 for fiscal year 2006.

(e) ENVIRONMENTAL PROTECTION AGENCY.—There are authorized to be appropriated to the Environmental Protection Agency for carrying out this Act—

(1) $5,000,000 for fiscal year 2004;

(2) $5,500,000 for fiscal year 2005; and

(3) $6,000,000 for fiscal year 2006.

SEC. 8. EXTERNAL REVIEW OF THE NATIONAL NANOTECHNOLOGY RESEARCH AND DEVELOPMENT PROGRAM.

(a) IN GENERAL.—Not later than 6 months after the date of enactment of this Act, the Director shall enter into an agreement with the National Academy of Sciences to conduct periodic reviews of the Program. The reviews shall be conducted once every 3 years during the 10-year period following the enactment of this Act. The reviews shall include—

(1) an evaluation of the technical achievements of the Program;

(2) recommendations for changes in the Program;

(3) an evaluation of the relative position of the United States with respect to other nations in nanotechnology research and development;

(4) an evaluation of the Program's success in transferring technology to the private sector;

(5) an evaluation of whether the Program has been successful in fostering interdisciplinary research and development; and

(6) an evaluation of the extent to which the Program has adequately considered societal and ethical concerns.

(b) STUDY ON MOLECULAR MANUFACTURING.—Not later than 3 years after the date of enactment of this Act a review shall be conducted in accordance with subsection (a) that includes a study to determine the technical feasibility of the manufacture of materials and devices at the molecular scale. The study shall—

(1) examine the current state of the technology for enabling molecular manufacturing;

(2) determine the key scientific and technical barriers to achieving molecular manufacturing;

(3) review current and planned research activities that are relevant to advancing the prospects for molecular manufacturing; and

(4) develop, insofar as possible, a consensus on whether molecular manufacturing is technically feasible, and if found to be feasible—

(A) the estimated timeframe in which molecular manufacturing may be possible on a commercial scale; and

(B) recommendations for a research agenda necessary to achieve this result.

(c) STUDY ON SAFE NANOTECHNOLOGY.—Not later than 6 years after the date of enactment of this Act a review shall be conducted in accordance with subsection (a) that includes a study to assess the need for standards, guidelines, or strategies for ensuring the development of safe nanotechnology, including those applicable to—

(1) self-replicating nanoscale machines or devices;

(2) the release of such machines or devices in natural environments;

(3) distribution of molecular manufacturing development;

(4) encryption;

(5) the development of defensive technologies;

(6) the use of nanotechnology as human brain extenders; and

(7) the use of nanotechnology in developing artificial intelligence.

SEC. 9. SCIENCE AND TECHNOLOGY GRADUATE SCHOLARSHIP PROGRAMS.

(a) ESTABLISHMENT OF PROGRAMS.—

(1) IN GENERAL.—The agency heads shall each establish within their respective departments and agencies a Science and Technology Graduate Scholarship Program to award scholarships to individuals that is designed to recruit and prepare students for careers in the Federal Government that require engineering, scientific, and technical training.

(2) COMPETITIVE PROCESS.—Individuals shall be selected to receive scholarships under this section through a competitive process primarily on the basis of academic merit, with consideration given to financial need and the goal of promoting the participation of individuals identified in section 33 or 34 of the Science and Engineering Equal Opportunities Act (42 U.S.C. 1885a or 1885b).

(3) SERVICE AGREEMENTS.—To carry out the Programs the agency heads shall enter into contractual agreements with individuals selected under paragraph (2) under which the individuals agree to serve as full-time employees of the Federal Government, for the period described in subsection (f)(1), in positions needed by the Federal Government and for which the individuals are qualified, in exchange for receiving a scholarship.

(b) SCHOLARSHIP ELIGIBILITY.—In order to be eligible to participate in a Program, an individual must—

(1) be enrolled or accepted for enrollment as a full-time student at an institution of higher education in an academic field or discipline described in a list made available under subsection (d);

(2) be a United States citizen or permanent resident; and

(3) at the time of the initial scholarship award, not be a Federal employee as defined in section 2105 of title 5 of the United States Code.

(c) APPLICATION REQUIRED.—An individual seeking a scholarship under this section shall submit an application to an agency head at such time, in such manner, and containing such information, agreements, or assurances as the agency head may require.

(d) ELIGIBLE ACADEMIC PROGRAMS.—The agency heads shall each make publicly available a list of academic programs and fields of study for which scholarships under their department's or agency's Program may be utilized, and shall update the list as necessary.

(e) SCHOLARSHIP REQUIREMENT.—

(1) IN GENERAL.—Agency heads may provide scholarships under their department's or agency's Program for an academic year if the individual applying for the scholarship has submitted to the agency head, as part of the application required under subsection (c), a proposed academic program leading to a degree in a program or field of study on a list made available under subsection (d).

(2) DURATION OF ELIGIBILITY.—An individual may not receive a scholarship under this section for more than 4 academic years, unless an agency head grants a waiver.

(3) SCHOLARSHIP AMOUNT.—The dollar amount of a scholarship under this section for an academic year shall be determined under regulations issued by the agency heads, but shall in no case exceed the cost of attendance.

(4) AUTHORIZED USES.—A scholarship provided under this section may be expended for tuition, fees, and other authorized expenses as established by the agency heads by regulation.

(5) CONTRACTS REGARDING DIRECT PAYMENTS TO INSTITUTIONS.—Each agency head may enter into a contractual agreement with an institution of higher education under which the amounts provided for a scholarship under this section for tuition, fees, and other authorized expenses are paid directly to the institution with respect to which the scholarship is provided.

(f) PERIOD OF OBLIGATED SERVICE.—

(1) DURATION OF SERVICE.—The period of service for which an individual shall be obligated to serve as an employee of the Federal Government is, except as provided in subsection (h)(2), 24 months for each academic year for which a scholarship under this section is provided.

(2) SCHEDULE FOR SERVICE.—(A) Except as provided in subparagraph (B), obligated service under paragraph (1) shall begin not later than 60 days after the individual obtains the educational degree for which the scholarship was provided.

(B) An agency head may defer the obligation of an individual to provide a period of service under paragraph (1) if the agency head determines that such a deferral is appropriate. The agency head shall prescribe the terms and conditions under which a service obligation may be deferred through regulation.

(g) PENALTIES FOR BREACH OF SCHOLARSHIP AGREEMENT.—

(1) FAILURE TO COMPLETE ACADEMIC TRAINING.—Scholarship recipients who fail to maintain a high level of academic standing, as defined by the appropriate agency head by regulation, who are dismissed from their educational institutions for disciplinary reasons, or who voluntarily terminate academic training before graduation from the educational program for which the scholarship was awarded, shall be in breach of their contractual agreement and, in lieu of any service obligation arising under such agreement, shall be liable to the United States for repayment within 1 year after the date of default of all scholarship funds paid to them and to the institution of higher education on their behalf under the agreement, except as provided in subsection (h)(2). The repayment period may be extended by the agency head when determined to be necessary, as established by regulation.

(2) FAILURE TO BEGIN OR COMPLETE THE SERVICE OBLIGATION OR MEET THE TERMS AND CONDITIONS OF DEFERMENT.—Scholarship recipients who, for any reason, fail to begin or complete their service obligation after completion of academic training, or fail to comply with the terms and conditions of deferment established by the appropriate agency head pursuant to subsection (f)(2)(B), shall be in breach of their contractual agreement. When recipients breach their agreements for the reasons stated in the preceding sentence, the recipient shall be liable to the United States for an amount equal to—

(A) the total amount of scholarships received by such individual under this section; plus

(B) the interest on the amounts of such awards which would be payable if at the time the awards were received they were loans bearing interest at the maximum legal prevailing rate, as determined by the Treasurer of the United States,

multiplied by 3.

(h) WAIVER OR SUSPENSION OF OBLIGATION.—

(1) DEATH OF INDIVIDUAL.—Any obligation of an individual incurred under a Program (or a contractual agreement thereunder) for service or payment shall be canceled upon the death of the individual.

(2) IMPOSSIBILITY OR EXTREME HARDSHIP.—The agency heads shall by regulation provide for the partial or total waiver or suspension of any obligation of service or payment incurred by an individual under their department's or agency's Program (or a contractual agreement thereunder) whenever compliance by the individual is impossible or would involve extreme hardship to the individual, or if enforcement of such obligation with respect to the individual would be contrary to the best interests of the Government.

(i) DEFINITIONS.—In this section the following definitions apply:

(1) AGENCY HEAD.—The term ''agency head'' means the Director of the National Science Foundation, the Secretary of Energy, the Administrator of the National Aeronautics and Space Administration, the Director of the National Institute of Standards and Technology, or the Administrator of the Environmental Protection Agency.

(2) COST OF ATTENDANCE.—The term ''cost of attendance'' has the meaning given that term in section 472 of the Higher Education Act of 1965 (20 U.S.C. 1087ll).

(3) INSTITUTION OF HIGHER EDUCATION.—The term ''institution of higher education'' has the meaning given that term in section 101(a) of the Higher Education Act of 1965 (20 U.S.C. 1001(a)).

(4) PROGRAM.—The term ''Program'' means a Science and Technology Graduate Scholarship Program established under this section.

AMENDMENT NO. 1 OFFERED BY MR. BELL

Mr. BELL. Mr. Chairman, I offer an amendment.

The CHAIRMAN. The Clerk will designate the amendment:

The text of the amendment is as follows:

Amendment No. 1 offered by Mr. BELL:

In section 3(b)(5), strike ''environmental concerns'' and insert ''toxicological studies, environmental impact studies,''.

Mr. BELL. Mr. Chairman, the traditional approach on environmental and health concerns for new technologies is to simply wait until there is a problem.

Instead of reacting down the line in response to environmental or health problems that may arise in the development of nanotechnology, we have the opportunity through this amendment to understand the risk involved as we move forward in our research now.

One common, often fair, criticism of government is that we are slow and reactive. Here is a chance for all of us to be proactive.

This amendment will ensure that the environmental and toxicological impacts of nanotech applications are studied during the developmental process so that problems can be spotted early on and fixed before any damage is done. Prevention is better and cheaper than cleanup. I think everybody would agree with that.

History has many examples of promising technologies whose hidden costs and risks were only determined after widespread adoption. These include nuclear power, which continues to generate an enormous amount of toxic waste; DDT, which wiped out malarial mosquitoes in the U.S. but was harmful to animal life; semiconductor manufacturing, which ushered in the computer revolution but resulted in environmental contamination.

There are other examples of science moving forward but then looking at the implications after the fact. Probably the best most recent example is stem cell research; and regardless of where one lines up in that debate, I think everyone can agree that it would have been smarter for us to look at some of the societal concerns while the research was being developed instead of after the fact.

We have a responsibility to quantify the risks ahead of time. We have a responsibility to minimize the unintended consequences. Currently, the toxicological impacts of nanotechnology are not being studied because no funding has been allocated to make it happen. Ultrafine particles, particles larger than nanoparticles, such as asbestos and ultrafine quartz particles, have been known to cause damage to the lungs.

We would like to know the toxic effects of nanoparticles. To date, only one comprehensive study has been performed to examine the possible toxicity of nanoparticles. A group of researchers recently discovered that mice and rats develop scar tissue in their lungs after exposure to carbon nanotubes. This was the first preliminary study that examines the possible toxicological risks of nanotechnology. I would submit that these studies must continue.

What is the impact on the human body? The answer is that we do not know, but that is a question that we must be able to answer. These very preliminary studies show us that further research is needed. There are issues of risks associated with every new technology. Concerns about nanoparticles' toxicity must be addressed while the field is still young and exposure is limited.

We in this body have the responsibility to ensure that the necessary research is being performed to ensure the continued safety of our communities in the face of this exciting new technology.

Mr. BOEHLERT. Mr. Chairman, I move to strike the last word.

Mr. Chairman, I rise in opposition to the amendment offered by the gentleman from Texas (Mr. BELL) because I think it overspecifies the issues that should be addressed by research directed towards societal and ethical concerns. I also want to point out that the administration, which is championing this initiative and who were of the same mind, opposes this amendment.

H.R. 766 already makes it clear both in the bill and in the accompanying report language that societal and ethical concerns include concerns related to potential societal and environmental consequences associated with nanotechnology development. The language is general in order to permit the broadest range of research on the societal and environmental implications of nanotechnology.

We spent a great deal of time on this very issue during our committee's markup of the bill last week. The committee took particular care as to how societal and ethical concerns were described in the bill and how the national nanotechnology research and development program is required to address them.

We need to have broad authority to ensure that this research can focus on questions that may not seem important to us today but emerge as the science matures. This amendment takes us in the wrong direction by limiting the research on environmental concerns authorized in the bipartisan committee bill to toxicological and environmental impact statements.

The administration opposes the amendment. I do, too. I urge my colleagues to vote ''no.''

Mr. SHERMAN. Mr. Chairman, I move to strike the requisite number of words.

I rise in support of this amendment. It is my understanding that the amendment does not limit the societal impact that is going to be evaluated, but simply specifies that among the things to be looked at are the toxicological and the environmental.

I do not know whether the gentleman from Texas would want me to yield to him so that he could further explain whether his amendment would limit or perhaps just identify certain areas for such review.

Mr. BELL. Mr. Chairman, will the gentleman yield?

Mr. SHERMAN. I yield to the gentleman from Texas.

Mr. BELL. Mr. Chairman, I thank the gentleman from California for yielding.

In no way would it limit, and that is why we specifically used language that said ''including toxicological and environmental concerns.'' Researchers in this area would still be free to study a wide range of societal and ethical concerns associated with nanotechnology. We just want to make sure that included in that research will be research going toward toxicological and environmental concerns as well.

□ 1330

Mr. Chairman, the distinguished Chair of the Committee on Science and I happen to disagree on what could possibly lead to arbitrariness as this research concerning nanotechnology goes forward. It is my fear if we do not set forth some of the areas in particular that we would like to see studied, they could be overlooked. But it is in no way limiting the scope of the research that will be conducted regarding societal and ethical concerns associated with nanotechnology.

Mr. SHERMAN. Mr. Chairman, reclaiming my time, I think the bill does a good job of dealing with the societal impacts. This amendment would make it better.

I just returned from spending 2 days at the conference of the Foresight Institute in Palo Alto devoted exclusively to looking at the societal impacts of nanotechnology. There I had extensive discussions with Eric Drexler who coined the term ''nanotechnology,'' and got to meet the people from the Singularity Institute who are focusing on the implications of artificial intelligence.

One good aspect of this bill that I should point out is Michael Creighton's book ''Prey'' is identified with nanotechnology; and, in fact, whether or not what he describes in that book is possible, the bill already identifies six standards to be included in the safety standards for the research done in this technology. Following even some of those standards would be enough to put ''Prey'' to rest.

So the bill does have some excellent aspects to it. I think it could be enhanced by the amendment from the gentleman from Texas. I would also point out that the bill calls for societal impacts to be reviewed as part and parcel of scientific research so that when it is practical to fund scientific research, that the societal impacts are reviewed.

The bill also, and I think this is important, would allow us to look at the societal impact separately and prior to the time when it is appropriate to fund practical scientific studies. So it may be that we are not funding a particular type of technology because it is not ripe, but we do need to look at the societal impacts of that technology even before it is ripe to develop it.

Mr. Chairman, I look forward to being part of the process as this bill moves to the other body. I think it is a bill that covers the societal impacts, and the amendment would only make it better.

Mr. HALL. Mr. Chairman, I move to strike the requisite number of words.

Mr. Chairman, we have a great bill. We think that this amendment would help it. I support the bill whether we put the amendment on or not; but it seems to me that this just adds toxicological studies, which simply means in plain American language is we want to add health effects to it. In subsection 5, page 4, line 23, they point and ensure that societal and ethical concerns, including environmental concerns and potential implications of human performance enhancement and the possible development of nonhuman intelligence will be addressed. This simply adds health to it.

I think it aids the bill substantially. It brings some common sense to it, and I urge adoption of the amendment.

Mr. MILLER of North Carolina. Mr. Chairman, I move to strike the requisite number of words.

Mr. Chairman, I rise also in support of the Bell amendment. The potential benefit of nanotechnology is truly astounding, but there are also potential harmful consequences.

I come from a part of the country where a century ago we imported an ornamental Japanese groundcover, kudzu. It was thought to help prevent soil erosion. Now 7 million acres of the South is covered with kudzu. It covers crops, forests, houses, barns. Many of us suspect that we have lost slow-moving relatives to the kudzu.

We are now talking about manipulating matter at the atomic and molecular level. I want to make sure we are not turning loose upon the world a molecular, atomic kudzu. We do not know how manipulated particles, atoms and molecules, will interact with the environment, particularly human tissue. And we do not know if self-replicating molecules and atoms will know when to stop replicating.

Mr. Chairman, I hope that all of these concerns will prove to be overblown, and we will look back in 30 years and think of this the way we now think about the concerns about the astronauts bringing back Moon germs from the Moon.

But we certainly have plenty of examples of things that we should have worried about and we did not worry about. It includes concerns about toxicity, the toxicity of manipulated molecules and atoms, and the effects on the environment. I want to make sure that our societal and ethical concerns about nanotechnology is not limited to philosophers and theologians wondering if we are playing God, but rather if we are creating matter that is going to be harmful to human tissue and will harm the environment. I support the amendment.

The CHAIRMAN. The question is on the amendment offered by the gentleman from Texas (Mr. BELL).

The question was taken; and the Chairman announced that the noes appeared to have it.

Mr. BELL. Mr. Chairman, I demand a recorded vote, and pending that, I make the point of order that a quorum is not present.

The CHAIRMAN. Pursuant to clause 6 of rule XVIII, further proceedings on the amendment offered by the gentleman from Texas (Mr. BELL) will be postponed.

The point of no quorum is considered withdrawn.

AMENDMENT NO. 2 OFFERED BY MR. BELL

Mr. BELL. Mr. Chairman, I offer an amendment.

The CHAIRMAN. The Clerk will designate the amendment.

The text of the amendment is as follows:

Amendment No. 2 offered by Mr. BELL:

In section 3(b)(1), insert '', including research on the potential of nanotechnology to produce or facilitate the production of clean, inexpensive energy,'' after ''nanotechnology research and development''.

Mr. BELL. Mr. Chairman, just after being sworn in as a Member of Congress, I had the privilege of listening to Dr. Richard Smalley, who is a Nobel Laureate who now teaches at Rice University and is recognized as a leader in the area of nanotechnology.

During the course of his speech, many of his remarks were directed towards the impact that photoresearch and the area of nanotechnology could have in the area of energy. He pointed out to the crowd assembled that evening how in this particular area regarding energy, nanotechnology could very much change the world in which we live. I am not a scientist, but when people start talking about how something could change the world in a very beneficial manner, those words get my attention.

The purpose of the amendment that we present here today is to single out energy, along with the other important areas for research that are already set forth within the bill.

Nanotechnology holds the promise to make energy production cheap and relatively pollution-free by reducing the cost of solar and fuel cell technology anywhere from 10 to 100 fold. Nanotech lighting technology could replace incandescent and fluorescent lights with enormous energy cost savings across every sector of the economy.

If we look at what is going on in the United States today regarding the cost of energy, the price of gasoline skyrocketing all across the country, the cost of natural gas rising so high that plants are threatening to close and move overseas on an almost daily basis, I think all of us can understand the need for looking for low-cost alternative energy sources, especially when it could be a clean source of energy.

Mr. Chairman, nanotechnology holds the promise of tomorrow because it

truly is the technology of the future. Its application will be felt across the spectrum of scientific research. I hope my colleagues will join me in supporting the development of this exciting field and pinpoint energy as an area that is very much deserving of further study.

Mr. Chairman, I urge support for this amendment.

Mrs. BIGGERT. Mr. Chairman, I move to strike the last word.

Mr. Chairman, I rise in strong opposition to the Bell amendment to H.R. 766, the Nanotechnology Research and Development Act. As the chairman of the Subcommittee on Energy of the Committee on Science and someone who is very passionate about energy research, I certainly am one who would be inclined to elevate energy applications above all other applications in just about any research area, including nanotechnology research.

However, the purpose of this bill is to ensure coordination and collaboration of nanotechnology research by all Federal science agencies, including the Department of Energy. I believe that this bill in its current form already includes the kind of research the Bell amendment is attempting to advocate or emphasize. It does so by authorizing a significant amount of funding for research at the Department of Energy, the Federal agency with the central mission and responsibility to encourage the development of clean, inexpensive energy.

As a result, the bill will revolutionize energy production and use. Key enabling technologies such as catalysts, membranes, and filters all operate at the nanoscale. A better understanding of the nanoscale and the development of nanotechnologies will enable dramatic cost reductions in hydrogen production, carbon sequestration, and a host of other energy applications.

I do not think that specifying research development in the statute adds anything new and will only tie the administration's hands and the Federal agencies' hands. I urge my colleagues to support the bill as reported by the committee and oppose the Bell amendment.

Mr. HALL. Mr. Chairman, I move to strike the requisite number of words.

Mr. Chairman, I think it makes sense, and the gentleman who offers the amendment is from Houston, Texas, which is a salient part of the energy thrust. And Texas being one of the 10 States that produces energy for the other 40 States thinks this is important. I think it is important to add it. It is simple. It simply adds including research on the potential of nanotechnology to produce or facilitate the production of clean, inexpensive energy. I think it helps, and I think it is consistent with the rest of the bill.

Mr. BELL. Mr. Chairman, will the gentleman yield?

Mr. HALL. I yield to the gentleman from Texas.

Mr. BELL. Mr. Chairman, I would just point out if we can get a group of Texans excited about looking for a clean, inexpensive form of energy, the House of Representatives should not balk at that opportunity.

This is an extraordinary opportunity in many respects. We are not trying to limit the research, just as I pointed out previously in regard to the earlier amendment.

This is simply to include a provision in the bill that will lead researchers to look at energy technology and provide funding for energy technology down the line so we can study this. This is not an area that is widely discussed when people talk about nanotechnology. But given what some of the leaders in this area of research have pointed out, there is tremendous optimism that it could lead to a sustainable, clean-burning, inexpensive source of energy; and we should not miss the opportunity to look at that as we are studying nanotechnology.

Mr. HALL. Mr. Chairman, Texans cannot only think big, we can think little, too; and that is what we are doing.

Mr. BOEHLERT. Mr. Chairman, I move to strike the requisite number of words.

Mr. Chairman, who can be against clean, inexpensive energy? I am not, but does it make sense to pick out this one laudable goal and hold it up above all others, including medical advances, homeland security, technology that can drive faster economic growth? Yes, energy is important and this bill recognizes it.

□ 1345

It is an important part of H.R. 766 and it is demonstrated by the portion of the bill that authorizes $265 million for nanotechnology research at the Department of Energy next year alone. That is significant. But energy is not more important than many of the other things that nanotechnology will do. Would you say it is more important than finding a cure for cancer? Or more important than protecting our borders in our fight for homeland security? These are all important, laudable goals, and the bill covers them all.

Once again, we are not just throwing petty cash at this subject. We are devoting $265 million to it. The administration opposes this amendment, and so do I because it is too prescriptive. Therefore, I would urge a ''no'' vote.

The CHAIRMAN. The question is on the amendment offered by the gentleman from Texas (Mr. BELL).

The question was taken; and the Chairman announced that the noes appeared to have it.

Mr. BELL. Mr. Chairman, I demand a recorded vote, and pending that, I make the point of order that a quorum is not present.

The CHAIRMAN. Pursuant to clause 6 of rule XVIII, further proceedings on the amendment offered by the gentleman from Texas (Mr. BELL) will be postponed.

The point of no quorum is considered withdrawn.

AMENDMENT OFFERED BY MS. EDDIE BERNICE JOHNSON of texas

Ms. EDDIE BERNICE JOHNSON of Texas. Mr. Chairman, I offer an amendment.

The Clerk read as follows:

Amendment offered by Ms. EDDIE BERNICE JOHNSON of Texas:

In section 5(b), after paragraph (7), insert the following:

In carrying out the assessment required under paragraph (7), the Advisory Committee shall consider the findings and recommendations from citizen panels described in section 6(b).

In section 6, insert ''(a) IN GENERAL.—'' before ''The President shall''.

In section 6, insert the following new subsection at the end:

(b) CITIZEN PANELS.—(1) The National Nanotechnology Coordination Office shall convene citizen panels, with membership composed of nonscientific and nontechnical experts, in different geographic regions of the Nation, to consider societal and ethical concerns arising from the development and application of nanotechnology. The Coordination Office shall develop guidelines and procedures governing the functioning of the citizen panels under this subsection in consultation with the Director of the National Science Foundation.

(2) The first citizen panel shall meet within 18 months after the date of enactment of this Act, and subsequent panels shall meet on a schedule established by the Coordination Office, but not less frequently than at 18-month intervals.

(3) Citizen panels shall prepare reports containing the panels' findings and recommendations, and the Coordination Office shall ensure the wide dissemination of the reports.

(4) Of the amounts authorized under section 7(a), such sums as may be necessary shall be made available to carry out this subsection.

Ms. EDDIE BERNICE JOHNSON of Texas (during the reading). Mr. Chairman, I ask unanimous consent that the amendment be considered as read and printed in the RECORD.

The CHAIRMAN. Is there objection to the request of the gentlewoman from Texas?

There was no objection.

Ms. EDDIE BERNICE JOHNSON of Texas. Mr. Chairman, I rise in support of the amendment that I have for H.R. 766. It has to do with adding under the auspices of the National Science Foundation a citizens advisory committee. There is nothing sinister about my desire to do this. I want to do this because I feel that more and more citizen input is demanded by citizens. This research will be paid for by citizens. And to have someone to sit and listen and get an understanding simply creates a more positive attitude throughout society, I feel, with the research.

This is going to be research that people do not understand very well. Even the researchers will not understand it too well until they start to do the research. It could provide revolutionary advances in health care and dramatically increase our life-span. But people need to know this. They need to know that this is not going to be perhaps research on stem cells or whatever, so

that the fears can be allayed, the anxieties can be eliminated because of this. This powerful and pervasive technology, while promising great benefits, has its downsides.

While I support the bill, I do have that one concern, that the views of the general public who will bear the brunt of the consequences, both good and bad, have no input in the planning and execution of the research program and no input as to asking questions and getting answers as the research goes on. As I indicated, taxpayers are paying for the development of this technology and they have a right to have a voice in this research agenda.

My amendment goes to the heart of this problem. It provides for small panels of ordinary citizens to be assembled to examine important societal issues about nanotechnology. Panelists would be selected across the socioeconomic spectrum, ordinary, practical Americans. These citizen panels would hear expert testimony from those doing the research, listen to arguments about the applications and consequences presented by all sides and develop an agenda of major public issues to address. These John Q. Public panels will provide agencies carrying out the nanotechnology R&D program and the broader public of the common ground among the cross-section of Americans on the goals and directions of this R&D program.

The bill does provide support for experts to address the societal and ethical concerns of nanotechnology. However, that is the problem when only the experts are involved. These are the same type of experts that did not provide effective guidance on how to address societal and ethical concerns on genetically modified foods, and now we still have a question about whether or not they are safe to eat, human stem cell research and cloning. As a witness pointed out during a hearing on nanotechnology, social and ethical expert panels frequently become captive to the technology they are supposed to be providing oversight on. I believe that there is evidence that expert panels are not by themselves sufficient to address broad public concerns. That is why my amendment explicitly calls for citizen panels.

Members may ask, why is this important? Just think about the public backlash and debate on genetically modified organisms, think Frankenfoods, human stem cell research, and cloning to name a few. When the public was asked to accept the results of these technologies and asked simple, commonsensical questions, the research community said trust us, the fatalists said the world would come to an end, and no one really required the science community to sit down with the public and discuss the benefits and possible costs of these technologies. As a result, the full potential of these technologies have not been realized. Citizen panels promise to avoid this logjam by allowing the public's voice to be heard during the development period of the technology, not after it is introduced.

Today I ask my colleagues to support this amendment to put in place a proven approach to help increase public understanding of nanotechnology and provide an avenue for ordinary Americans to influence the direction of this R&D initiative.

Mr. BURGESS. Mr. Chairman, I move to strike the last word.

Mr. Chairman, I urge opposition to the Johnson amendment. First off, the administration opposes this amendment. The bill that is under consideration already provides a forum for citizen involvement. By statute, the meetings and proceedings of the Advisory Committee on Nanotechnology must be open to the public. Weighing down the National Coordination Office for Nanotechnology with citizens' panels would be unnecessarily costly as well as prescriptive. The Danish model embodied in the Johnson amendment has not worked well here. A scholarly review of the Danish-type citizens' panel process convened to study telecommunications and democracy judged the process to be ineffective.

I would, however, add my support to H.R. 766, the Nanotechnology Research and Development Act of 2003. I want to commend Chairman BOEHLERT for his firm leadership on this issue and I am pleased that I had the opportunity to work in a bipartisan fashion with my colleagues on the Committee on Science. Nanotechnology is an exciting new field of scientific study and promises to provide humankind with unimaginable advances in manufacturing, materials, medicine, construction, computing and telecommunications.

As we have learned in committee from the testimony of Dr. James Roberto, we are truly moving from atomic scale characterization to atomic scale control, from miniaturization to self-assembly. As a physician I am especially excited about nanotechnology applications in medicine. Most diseases and illnesses occur at the cellular level and the surgical tools of tomorrow will have a level of precision that is unimagined today. Nanotechnology advancements in medicine will soon be able to inexpensively fabricate essentially any structure that is consistent with chemical and physical laws and specified in molecular detail.

As we also learned in committee, recently the University of Michigan used nanoprobes to image chemical activity inside cells. Today this provides information about metabolic processes inside cells, but tomorrow we may be able to modify these processes. We will truly move from an era of nanodiagnostics to nanotherapy. The ramifications that this technology could have on cancer treatment, trauma surgery or organ transplantation would be literally life-changing. In order to improve the health of Americans, a coordinated approach to nanotechnology research and development will be necessary in order to reorient how we practice medicine. H.R. 766 will do that and much more.

The National Nanotechnology Research and Development Program established under this bill would promote research and development into this promising new science as well as facilitate commercial applications for new developments. H.R. 766 will also establish formal interagency cooperation, reducing government waste and duplication on nanotechnology projects. By streamlining national efforts in regard to nanotechnology, commercial applications of the technology will come sooner rather than later. And perhaps one of the greatest impacts this bill will have will be the impact on our economy. This new technology will be an engine of growth for our economy and has the potential to create millions of new jobs in several sectors of the United States and the global economies. Nanotechnology will change the way our lives are lived by improving our health, our environment and the ways in which we live and work.

Mr. Chairman, I urge support for this bipartisan legislation, H.R. 766.

Ms. WOOLSEY. Mr. Chairman, I move to strike the requisite number of words.

Ms. EDDIE BERNICE JOHNSON of Texas. Mr. Chairman, will the gentlewoman yield?

Ms. WOOLSEY. I yield to the gentlewoman from Texas.

Ms. EDDIE BERNICE JOHNSON of Texas. Mr. Chairman, I have heard a couple of times that the amendment was opposed because the administration did not want it. Could you tell me the objection of the administration? How did they find little old me with this little old amendment to object to it?

Mr. BOEHLERT. Mr. Chairman, will the gentlewoman yield?

Ms. WOOLSEY. I yield to the gentleman from New York.

Mr. BOEHLERT. Let me state at the outset that I support and the administration supports broader public participation. We have been assured by the administration that every meeting will have a set-aside period for public participation, the type of participation that the gentlewoman wants and is a cherished part of our system. So I applaud the gentlewoman's objective but the fact of the matter is we do not need a whole bunch of new panels.

Let me point out, if you want me to use some additional time, this is modeled after the Danish system. I was told that research puts that into question, that sort of formalized structure. A scholarly study on the impact of just such a citizens panel in the United States, not in Denmark, here, concluded that not even those engaged in organizing the U.S. citizens panel thought it had any actual impact. Let me quote from their report: ''The single greatest area of consensus among the respondents was that the Citizens Panel on Telecommunications and the

Future of Democracy had no actual impact. No respondent, not even those government members of the steering committee or expert cohort, identified any actual impact.''

Having said that, does that mean that I agree that we do not need any citizen input? Not at all. I agree with the gentlewoman that we do need citizen input. I applaud her effort, but I have to oppose this particular amendment to be so prescriptive and just to set in motion just who has to do what and when.

Ms. EDDIE BERNICE JOHNSON of Texas. If the gentlewoman will continue to yield, there was other language that had been attempted as substitute language. Would the gentleman accept that as an amendment? I have it prepared to submit it.

Mr. BOEHLERT. My staff tells me we tried very hard, because we talked in committee about this and I offered to work with the gentlewoman to strengthen the requirements for public participation in the underlying legislation. The staff have had conversations back and forth and apparently we could not bridge the differences. But let me assure the gentlewoman that she is absolutely right in calling for public participation. I want public participation. So does the administration. I just do not think we have to be so prescriptive in this bill as to set the parameters for that public participation.

Ms. WOOLSEY. Mr. Chairman, I rise in support of the Johnson amendment which calls for citizen panels to examine the societal issues and effects that could emerge from nanotechnology, effects and issues that may not be able to be detected and imagined with this imaginable science but for the untrained eye, the naive person that may not know what this is supposed to do may actually see what could come up and could get in the way of this being a straightforward technology. But this is a straightforward amendment. It adds more common sense to an already good underlying bill.

The Johnson amendment taps into the unscientific expertise that our neighbors, our colleagues, our family members, our friends could offer to the exciting development of nanotechnology.

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As with any new technology, Mr. Chairman, any new technological endeavor, some of the issues and consequences we might be able to anticipate from the very beginning; but others may not emerge for a time to come. More effort is needed. More effort is needed to increase public understandings of nanotechnology in the first place in order to avoid the backlash that has plagued other new technologies such as genetically modified foods, corn and the Monarch butterfly, for example.

Mr. Chairman, I rise in support of the Johnson amendment to H.R. 766, the Nanotechnology Research and Development Act.

The Johnson amendment, calls for citizen panels to examine the societal issues and effects that could emerge from nanotechnology, that may be imaginable to the scientist, but not the untrained eye. It is a straight forward amendment that adds more common sense to a good underlying bill.

We all know that local citizens often have the best insight for what is coming straight at us. The Johnson amendment taps into the unscientific expertise that our neighbors, colleagues, family members or friends could offer to the exciting development of nanotechnology.

During committee consideration of H.R. 766 we had a spirited debate about the potential societal and ethical issues that nanotechnology could mean for us down the road. As with any new technological endeavor, some of the issues and consequences we might be able to anticipate from the beginning . . . but others may not emerge for a time to come.

At our committee's nanotechnology hearings, we also had several witnesses who indicated that more effort is needed to increase public understanding of nanotechnology in order to avoid the backlash that has plagued other new technologies, such as genetically modified foods, corn and the Monarch Butterfly, for example.

In the past, too often the scientific or technological experts have told the public ''trust us''—this won't have any adverse consequences.

But we know that's not always the case, no matter how much the experts tell us otherwise.

Whether we're talking about the early questions that surrounded biotechnology, corn and the Monarch Butterfly or what nanotechnology might mean for increasing the human lifespan, there's certainly a demonstrated usefulness to having a commonsense voice be part of the research agenda.

Now is the time to incorporate those common sense voices into the research agenda. Now, while we're at the starting gate, not when we might already be involved in public controversy.

The Johnson amendment is the answer to this need for public involvement by calling on ordinary Americans to be a stakeholder in the nanotechnology research agenda. Ordinary Americans certainly have a stake in what nanotechnology can deliver, so we should make sure they have a voice in how nanotechnology may deliver it.

I urge my colleagues to support the Johnson amendment.

Mr. HONDA. Mr. Chairman, I move to strike the requisite number of words, and I yield to the gentlewoman from Texas (Ms. EDDIE BERNICE JOHNSON).

Ms. EDDIE BERNICE JOHNSON of Texas. Mr. Chairman, I have a question to ask the chairman of the committee. Since there is objection to the details of this citizens panel, there was a suggestion after much dialogue with the chairman and staff to recommend a more watered-down version of it. I would rather have the watered-down version than to not have a citizens panel because I think it is just going to prevent a great deal of turmoil later. I do not know how long it will take us to convince people that genetically modified foods are safe; but I think that if the education had started right along with the research, we would not be dealing with that problem.

Mr. BOEHLERT. Mr. Chairman, will the gentleman yield?

Mr. HONDA. I yield to the gentleman from New York.

Mr. BOEHLERT. Mr. Chairman, the staff is busy discussing, as we always do as a committee on bipartisan basis, a way to accommodate our mutual interest.

Ms. EDDIE BERNICE JOHNSON of Texas. Mr. Chairman, I ask unanimous consent to withdraw the amendment and wait for the details to be worked out.

The CHAIRMAN pro tempore (Mr. OTTER). Is there objection to the request of the gentlewoman from Texas?

There was no objection.

The CHAIRMAN pro tempore. The amendment is withdrawn.

Ms. JACKSON-LEE of Texas. Mr. Chairman, I move to strike the last word.

(Ms. JACKSON-LEE of Texas asked and was given permission to revise and extend her remarks.)

Ms. JACKSON-LEE of Texas. Mr. Chairman, I simply hope that we can work out this concept of citizen panels because I do believe there is a mutual benefit to having the citizenry having their input into very fine technical and very precise technology that really is going to be a job generator. It is going to be an enhancement for a better quality of life, and I would hope that in the course of deliberating that we would find an opportunity to support just a simple concept, Mr. Chairman, having citizen panels to address the question of the quality of this kind of technology.

Mr. Chairman, first I would like to commend Chairman BOEHLERT and Ranking Member HALL on the Science Committee for their hard work and bipartisan spirit in crafting this bill. We and our staffs have been working very closely together to ensure that this Bill ensures a bright, productive, and lucrative future for the field of nanotechnology in the United States. I would also like to commend my colleague from California, Mr. HONDA for his leadership in the exciting field of nanotechnology. I am pleased to be a co-sponsor of this bill and look forward to seeing it signed into law.

My amendment today will create a Center for exploration of ethical/societal/environmental and education issues related to Nanotechnology. It represents a compromise between those in the Science Committee who wanted to elevate this kind of research, and those who were reluctant to micromanage the administration by assigning dollar values to such programs. If we disagree on some of the fine details here today, it should not detract from the excellent collaboration we have engaged in so far.

Nanotechnology is one of the most exciting fields of science today, involving a multitude of science and engineering disciplines, with widespread applications in electronics, advanced

materials, medicine, and information technology. The promise of nanotechnology to accelerate technological change has prompted some to advise caution about pursuing such rapid innovation without first developing a deep understanding of where it might lead us.

Advances in stem cell research, cloning, and genetically modified organisms, have left us scrambling to make smart decisions that will harness the great potential of these fields, but also avoid potential pitfalls or ethical disasters. As nanotechnology emerges, I hope we can be more proactive in guiding smart policies and appropriate research.

Nano-machined particles or biotech products could have potentially devastating health or geopolitical consequences if released into the atmosphere either unintentionally, or as a new class of weapons. Manipulations of biological systems could produce germs or species that could jeopardize our ecosystem.

Furthermore, there are even risks to society that may stem from the good outcomes of nanotechnology research. Over the past decades we have seen a troubling development, with the ''have-nots'' in our society finding themselves on the wrong end of a ''technological divide.'' As the internet, and other technologies, are making many of our lives so much easier and more productive, change has not reached all of our communities.

Too many are missing out on the tech revolution. These people are already fighting to keep up and compete in school, or in the workforce, and the technological divide makes that fight even harder. I do not want H.R. 766 to lead to a nanotechnology divide that will further handicap hard-working, tax-paying Americans.

Numerous experts from academics, think tanks, industry, as well as the NSF and the National Academy of Sciences, have come to the Science Committee strongly encouraging us to incorporate research on societal and ethical implications of nanotechnology, into any nanotech research initiative. They have also spoken of the importance of ensuring that nanotechnology research is guided by an understanding of health and environmental sciences.

We must ensure that as new technologies and products come about—in healthcare, in communications, in energy—that they have a positive impact on all of the American people, and on our planet.

I am pleased that the underlying bill includes provisions to provide for research into the societal and ethical concerns related to nanotechnology. The authors of the bill have recognized the importance of having that research integrated into the bench science research programs, so that there will be a constant dialogue between nanotech scientists, ethicists, and social scientists. I agree that such integration is necessary. My amendment preserves all of the language in the existing bill relating to that critical integrated research.

However, I am concerned that as this field progresses—as results start to translate into lucrative products, it becomes more competitive to get the hottest cutting edge research into journals, as researchers find it necessary to ''push the envelope'' in labs in order to get tenure—that the ethical/societal issues could become lost.

That is why, in addition to the integrated research program, my amendment adds a provision requiring the National Science Foundation to establish a Center for Societal, Ethical, Educational, Environmental, Legal, and Workforce Issues Related to Nanotechnology.

It will thus elevate and draw focus to the important research in these areas, without ''prescribing'' an exact dollar value for the program. The center will compile and enhance research from the integrated programs on societal and ethical implications. In addition, it will also add studies on environmental, legal, educational, and workforce issues.

Nanotechnology lies at the intersection of several scientific disciplines including biology, chemistry, physics, and materials science—and will thus demand a diverse and properly educated workforce. Proper workforce training needs to occur at all levels, from K–12 through university, to ensure that all are able to enjoy the social, economic and technical benefits that nanotechnology promises. This Center will help make that happen.

The center will serve as a conduit for transfer of papers and data and information, between researchers in the field, social scientists and outside special interest groups. It will communicate findings and recommendations to the National Academy of Science and to the Interagency Committee on Nanotechnology, to help them with their annual reports.

This amendment does NOT replace the integrated societal/ethical research programs, as some have suggested. Instead, it protects that research by giving it a home at NSF. It demonstrates to concerned citizens, that these issues are being addressed. And, it ensures that results from ''embedded'' social scientists, integrated into research centers, are widely disseminated and discussed.

A similar provision was widely accepted in the Senate and included in their bill. It has been supported by many of my colleagues in the Science Committee.

I believe this amendment will complement the underlying bill well, and urge my colleagues to support it.

Mr. HALL. Mr. Chairman, I move to strike the last word.

The gentleman from Texas (Mr. BURGESS) was correct when he pointed out that the amendment directs NSF to provide assistance to the National Nanotechnology Initiative in setting up and running the citizens panels, and I think that has to be in there because otherwise how would they know how to run the citizens panels if they do not hear from the citizens?

Mr. BOEHLERT. Mr. Chairman, will the gentleman yield?

Mr. HALL. I yield to the gentleman from New York. And I think the gentleman is being cooperative in trying to help. I recognize that.

Mr. BOEHLERT. Mr. Chairman, we are working this out. So the gentlewoman has kindly withdrawn her amendment from consideration; and during this interim period, the gentlewoman from Texas (Ms. JACKSON-LEE) will be up next with her staff. Staffs are trying to work out language that assures both sides that we get what we want, active citizen participation.

Mr. HALL. Mr. Chairman, I will wait to see the fruits of the gentleman's labors, and I thank the chairman for this extra work he is going into.

Mr. EHLERS. Mr. Chairman, I move to strike the last word.

I wish to speak on the general merits of the bill. Nanotechnology is an extremely important scientific development, one in which we are just beginning to scratch the surface. Few people in this country realize the tremendous potential that this has. At the same time, as a scientist, I have to say if someone asked me what are we going to get out of this, I have to simply say I am not sure. And that is the nature of basic research. In 1931 when theorists first started investigating stimulated emission of radiation, if one asked the question what is this going to come to, they would have said I do not know. And when Charles Townes first developed the hydrogen MASAR, microwave amplification by stimulated emission of radiation, and someone asked what is this going to come to, he probably said it would be a time standard, but was not certain of any development beyond that. And yet that research led to the development of the laser, and the development of the laser led to a multitude of applications in business, commerce, medicine and the military. The laser today is ubiquitous. Back then it was a precious, expensive discovery, but today we use tiny, inexpensive lasers just to point at slides on a screen. It has been amazing progress. And we will find the same thing with nanotechnology. It is a very promising field, but we do not know where it is going to lead.

Some of the promise of nanotechnology could be incredibly strong, light materials which could create a revolution in space travel and in ordinary airplane travel. Other uses for it could be in the medical arena, being able to entrap health-enhancing molecules within a nanoscale shell so that the medicine can be directly applied to the site we are trying to reach. For example, we might treat cancer in a very direct way by having a mechanism of transporting the chemotherapy molecules directly to the cancer cells and not to other cells. That would also be a marvelous development, but we really do not know if it will work out.

The point is simply that this is a very new technology, and already we know enough about it to know that it is a major breakthrough. It is absolutely essential that we pursue this research in a thoughtful manner and that we, as a Nation, commit ourselves to development of nanotechnology and research in nanoscience.

I am very much a supporter of the bill, and I appreciate the chairman of the Committee on Science and the ranking member for bringing this bill forward. It is a good step forward for our country. Frankly, we are going to need much more in the future in terms of guidance for how this new discovery is supposed to be used, including some of the ethical and societal concerns; but the first thing to do is to promote research on nanotechnology, find out exactly what promise it has, what may become of it, and then pursue those avenues of research.

Mr. SHERMAN. Mr. Chairman, I move to strike the last word.

I rise in support of this amendment. I think getting all of the citizen input possible is called for. I know that it has been discussed that perhaps the citizen panels on telecommunications did not create sufficient community interest. I for one found Tauzin-Dingell to be boring. I am not sure that my constituents found telecommunications to be a reason to drive long distances to participate in citizen panels. I think the issues that nanotechnology brings before us are simply going to create more citizen involvement and that the citizen panels here will be quite important.

Among the questions that this technology will raise, when I took the CPA test, they would not let me bring a calculator. A decade from now, chips will be implanted in people's brains. Can they take the CPA test? Do we have to disable the chip? I do not know. Today Shaquille O'Neil is the most dominating force on the basketball court, but what if parents decide that they want genes moved this way and that way so that their son or daughter could be even taller, even bigger? Will this person be eligible to participate in the NBA, and if so, will the Lakers get to draft that person? I do not know, but it strikes me as more interesting than much of telecommunications, and I know there are Members of this body very interested in telecommunications, and I praise them for that involvement.

The entire issue of artificial intelligence and what happens when a computer first asks us for the minimum wage, I do not know how we are going to react; but I think that these are questions we are going to confront in the next few decades. They are questions that should involve all of society. They involve the very issue of what it means to be a human being. They will arouse a level of theological debate that we did not face in telecommunications; and for those reasons I think that even if panels were not successful on that issue, they will be quite interesting on it. Before we change what it is to be human, we ought to ask humans what they think about.

Mr. BOEHLERT. Mr. Chairman, will the gentleman yield?

Mr. SHERMAN. I yield to the chairman.

Mr. BOEHLERT. Mr. Chairman, during the time that the gentleman has been speaking so eloquently, the majority and minority have reached an agreement on the gentlewoman from Texas's (Ms. EDDIE BERNICE JOHNSON) amendment which has been withdrawn, and now she is willing to offer a compromise amendment that we are prepared to accept. So I thank the gentleman for his input, and I anxiously await the words of the gentlewoman from Texas (Ms. EDDIE BERNICE JOHNSON).

Mr. SHERMAN. Mr. Chairman, reclaiming my time, this shows the kind of bipartisanship and camaraderie that has been achieved under the chairman and ranking member on the Committee on Science, and I salute it.

AMENDMENT OFFERED BY MS. EDDIE BERNICE JOHNSON OF TEXAS

Ms. EDDIE BERNICE JOHNSON of Texas. Mr. Chairman, I offer an amendment.

The Clerk read as follows:

Amendment offered by Ms. EDDIE BERNICE JOHNSON of Texas:

In section 3(b)(5)—

(1) strike ''and'' at the end of subparagraph (B); and

(2) after subparagraph (C), insert the following new subparagraph:

(D) ensure, through the National Nanotechnology Coordination Office established under section 6 and through the agencies and departments that participate in the Program that public input and outreach to the public are both integrated into Nanotechnology research and Development and research on societal and ethical conerns by the convening of regular and ongoing public discussion, through mechanisms such as citizen panels, consensus conferences, and educational events, as appropriate; and

In section 3(c)(6), insert '', suggestions or recommendations developed pursuant to section 3(b)(5)(D),'' after ''Advisory Committee''.

In section 5(b)(7), insert '', including concerns identified pursuant to section 3(b)(5)(D),'' after ''societal and ethical concerns''.

Ms. EDDIE BERNICE JOHNSON of Texas (during the reading). Mr. Chairman, I ask unanimous consent that the amendment be considered as read and printed in the RECORD.

The CHAIRMAN pro tempore. Is there objection to the request of the gentlewoman from Texas?

There was no objection.

Ms. EDDIE BERNICE JOHNSON of Texas. Mr. Chairman, this substitute amendment which I am offering now does essentially the same thing except that it is very voluntary; and if that is acceptable to the Chair and to the majority, then I will accept this amendment. So I would move its adoption.

Mr. BOEHLERT. Mr. Chairman, will the gentlewoman yield?

Ms. EDDIE BERNICE JOHNSON of Texas. I yield to the gentleman from New York.

Mr. BOEHLERT. Mr. Chairman, I think we worked out a very fine compromise that ensures the citizen input, and the majority is pleased to accept the gentlewoman's amendment.

Ms. EDDIE BERNICE JOHNSON of Texas. Mr. Chairman, I thank the gentleman.

The CHAIRMAN pro tempore. The question is on the amendment offered by the gentlewoman from Texas (Ms. EDDIE BERNICE JOHNSON).

The amendment was agreed to.

AMENDMENT OFFERED BY MS. JACKSON-LEE OF TEXAS

Ms. JACKSON-LEE of Texas. Mr. Chairman, I offer an amendment.

The Clerk read as follows:

Amendment offered by Ms. JACKSON-LEE of Texas:

In section 3, add at the end the following new subsection:

(d) CENTER FOR SOCIETAL, ETHICAL, EDUCATIONAL, ENVIRONMENTAL, LEGAL, AND WORKFORCE ISSUES RELATED TO NANOTECHNOLOGY.—The National Science Foundation shall establish a Center for Societal, Ethical, Educational, Environmental, Legal, and Workforce Issues Related to Nanotechnology to encourage, conduct, coordinate, commission, collect, and disseminate research on the societal, ethical, educational, environmental, legal, and workforce issues related to nanotechnology, including research under subsection (b)(5)(A). The Center shall also conduct studies and provide input and assistance to the chairperson of the Interagency Committee in completing the annual report required under section 4 and to the National Academy of Sciences for conducting reviews under section 8.

Ms. JACKSON-LEE of Texas (during the reading). Mr. Chairman, I ask unanimous consent that the amendment be considered as read and printed in the RECORD.

The CHAIRMAN pro tempore. Is there objection to the request of the gentlewoman from Texas?

There was no objection.

Ms. JACKSON-LEE of Texas. Mr. Chairman, the word is very large, but it is an extremely humbling science and approach that we are attempting to take with respect to nanotechnology. As I listened to the previous debate and my good friend from California who acknowledged that previously in other instances citizen panels may not have drawn the great enthusiasm that we would have liked them to draw, I am hoping that as we resolve the matter on a very good amendment by my colleague that I could work with the ranking member and the gentleman from New York (Chairman BOEHLERT) to work on what I think is a very important amendment as well.

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I would like to thank both of the gentlemen for the work on this particular legislation. As I said, the word is large, but the science and the concept is humbling. It deals with enhanced quality of life by the particular type of science and dealing with cutting edge technology to help improve our life and our lifestyle in America and around the world.

We have worked with our staffs very closely to ensure that this bill ensures a bright, productive and lucrative future for the field of nanotechnology in the United States.

I would also like to commend my colleague from California (Mr. HONDA) for his leadership in the exciting field of nanotechnology, and I am pleased to be a cosponsor of this bill and look forward to seeing it being signed into law.

My amendment today will create a Center for Exploration of Ethical, Societal, Environmental and Educational Issues Relating to Nanotechnology. And forgive me as I speak directly to the chairman. With that simple sentence, I believe we can find a wonderful way to project that and allow for this bill to make its way through this body and finally to passage.

The amendment represents a compromise between those in the Committee on Science who want to elevate this kind of research and those who are reluctant to micro-manage the administration by assigning dollar values to such programs.

If we disagree on some of the fine details here today, it should not detract from the excellent collaboration we have engaged in. Nanotechnology is one of the most exciting fields of science today, involving a multitude of science and engineering disciplines with widespread applications in electronics, advanced materials, medicine and information technology.

I am waiting for the ranking member to speak only because I know that he knows how to bring just the right humor along with the right type of technology and science. The ranking member, the gentleman from Texas (Mr. HALL), has been a vital resource for helping us forge these bipartisan efforts, but, more importantly, get good bills to the floor and get them passed.

I realize that this center has that capability of drawing a compromise. The promise of nanotechnology to accelerate technological change has prompted some to advise caution while pursuing such rapid innovation without first developing deep understanding of where it might lead us. Advances in stem cell research, cloning and genetically-modified organisms have left us scrambling to make smart decisions that will harness the great potential of these fields, but also avoid potential pitfalls or ethical disasters.

Mr. Chairman, we have discussed these issues in the Committee on Science. I can assure you there is unanimity on the issue of cloning amongst the Committee on Science and I know amongst this body. We do not want human cloning, but there are ethical questions being raised. This is what I speak of, the need to have a body that deals with these ethical considerations in an important, smart, effective and far-reaching way.

As nanotechnology emerges, I hope we can be more proactive in guiding smart policies and appropriate research. Nanomachine particles or biotech products can have potentially devastating health or geopolitical consequences if released into the atmosphere, either unintentionally or as a new class of weapons. Manipulations of biological systems can produce germs or species that could jeopardize our ecosystem.

Furthermore, there are even risks to society that may stem from the good outcomes of nanotechnology research. Over the past decades we have seen a troubling development with the have-nots in our society finding themselves on the wrong end of a technological divide. As the Internet and other technologies are making many of our lives so much easier and more productive, change has not reached all of our communities. There lies the need for such a center.

Too many are missing out on the tech revolution. These people are already fighting to keep up and compete in school or in the workforce, and the technological divide makes that fight even harder. I do not want this next step, nanotechnology, to divide us even further and to disadvantage hard-working, taxpaying Americans.

So there are numerous experts, think tanks, the National Science Foundation, the National Academy of Sciences, that have all come together, the Committee on Science, to ensure we are moving forward.

I think it is important to have such a center, Mr. Chairman, and I believe that my colleagues, we can work together to move this concept of my amendment along, a center that will bring all these forces together and ensure that nanotechnology works for all of America.

Mr. BOEHLERT. Mr. Chairman, I rise in reluctant opposition to the amendment.

Mr. Chairman, I share the commitment of the gentlewoman from Texas (Ms. JACKSON-LEE) to ensuring that research is conducted on the social and ethical issues relating to nanotechnology, but believe that this amendment does not take the preferred approach.

Our committee has given this issue a great deal of consideration, and we decided rather than going to just one center, but to fully integrate research on the social, environmental and ethical issues into the research being conducted under the entire National Nanotechnology Initiative. This ensures that social, ethical and environmental implications research will be fully grounded in the science of nanotechnology and that scientists conducting nanotechnology research will be aware of and be active participants in research on the social and societal implications of their work.

The provisions were further strengthened in committee by amendments offered by the gentleman from California (Mr. SHERMAN) and the gentleman from Texas (Mr. BELL).

The Jackson-Lee amendment is derived from a provision contained in the Senate bill that takes us in the opposite direction. It creates a stand-alone research center financed by the National Science Foundation. Based on our experience with the Human Genome Program, this will undermine our effort to ensure that social, ethical and environmental issues are part of the fabric of each nanotechnology center grant, and nearly guarantees that research on important societal and ethical concerns will not be relevant to or influence the research actually being conducted.

So rather than just focusing on one center, we wanted to build it, weave it, into the entire fabric.

Ms. JACKSON-LEE of Texas. Mr. Chairman, will the gentleman yield?

Mr. BOEHLERT. I yield to the gentlewoman from Texas.

Ms. JACKSON-LEE of Texas. Mr. Chairman, I appreciate the chairman's concern about the amendment, but let me make it perfectly clear that the amendment does not replace the integrated social-ethical research programs, as some have suggested. Instead, it protects that research by giving it a home at NSF and demonstrates to concerned citizens that these issues are being addressed. So it compliments what the gentleman is trying to do.

Mr. Chairman, I understand the gentleman's perspective of micromanaging. The amendment ensures that results from embedded social sciences integrated into research centers are widely disseminated and discussed.

While the gentleman was engaged in the very collaborative effort on the previous amendment, I too ask can we draw some language that would at least give us a place setting that talks about, encourages, the need for such a center, and then we can proceed with the collaborative work of the agencies as it proceeds through these bodies to know that there is a place for such a vehicle.

Mr. BOEHLERT. Mr. Chairman, reclaiming my time, no, I am not prepared to go that far, and I usually go very far in trying to accommodate the wishes of all the members of my committee, regardless of affiliation or position on the dais.

But the fact of the matter is we have made a conscious determination that rather than focusing on one center we are going to weave this into the entire fabric of the whole nanotechnology initiative. For that reason, I think we better address the issue.

Therefore, while I am reluctant to oppose, I do oppose the gentlewoman's amendment.

Mr. HALL. Mr. Chairman, I rise in support of the amendment.

Mr. Chairman, I will paraphrase Will Rogers, who said he never met a man he didn't like. I think it is pretty obvious that Ms. JACKSON-LEE, who is one of the hardest workers that I know in this Congress, never met an amendment or a bill she could not upgrade and she could not talk about and could not suggest on. I think she stresses the protection of societal and ethical issues.

As I said in my opening statement, I think it is important for the successful development of nanotechnology that potential problems be addressed from the beginning in a straightforward and open manner, and I think that is exactly what the gentlewoman has done. This is the amendment she requested, and this is the time I think to look at this amendment.

We are not going to burn the barn down and run the cattle off if we do not get every amendment we want. The chairman has worked with us and tried to help us. If there is any way to work this out to something less than the request she made, this is the time to do it.

Mr. Chairman, I would like to yield to the chairman to get his feelings about whether or not that can be done or whether or not we have to simply put it to a vote of the Congress.

Mr. BOEHLERT. Mr. Chairman, will the gentleman yield?

Mr. HALL. I yield to the gentleman from New York.

Mr. BOEHLERT. Was it Will Rogers that said I do not belong to an organization? No, never mind, I will not go into that one.

The fact of the matter is we are in general agreement on societal and ethical concerns and we have to pay a lot of attention to it, as we should. But I am unwilling to say that we have to devote an entire center to that one subject area, when in fact we are addressing that need by asking all of the centers or all of the research engaged under the National Nanotechnology Initiative to take into consideration societal and ethical concerns.

So I think we are actually broadening it in a way, without being so prescriptive that says we have to have brick and mortar in one location in America, and that is the solution to the problem.

I do not think that is the solution to the problem. I think it is to energize every single person who is operating under a research grant under this National Nanotechnology Initiative to be ever-mindful of the societal and ethical concerns.

Mr. HALL. Mr. Chairman, reclaiming my time, I thank the chairman for that, and I yield back to the author to make an answer.

Ms. JACKSON-LEE of Texas. Mr. Chairman, I thank the ranking member. If I could, I would like to engage the ranking member.

First of all, I think it is important that we have had good debate. As I said, the word is a big word, nanotechnology, so some of our constituents' eyes may be glazed over. But it truly is the kind of science that will impact their day-to-day life.

This center deals with the questions of workplace environment and educational issues, and so it is not narrowly focused. As we start moving quickly toward this whole idea of nanotechnology taking wings, and we begin to translate these into lucrative products and it becomes more competitive to get the hottest, cutting-edge research into journals as researchers find it necessary to push the envelope in labs in order to get tenure, the ethical-societal issues could become lost.

We know the thing, I think it is called the thing, but the new roller, the ''it'' that has been discovered, where you can move yourself around, these are the kinds of technology I am talking about.

If I might say to the gentleman from Texas (Mr. HALL), we will go to conference, and I would like to entertain the idea of the gentleman's support for this amendment and working with this idea in conference, and I believe that we can be successful.

So I see the other gentleman is looking to strike the last word. What I am going to do is engage with him in a moment, but if I could discuss that a little bit more after the gentleman from California (Mr. HONDA) speaks, then I will come to the floor if the gentleman from California (Mr. HONDA) would yield me some time after he speaks.

Mr. HONDA. Mr. Chairman, I move to strike the requisite number of words.

Mr. Chairman, this process of policy making is very interesting. My background is teaching, and listening to the rationale and arguments back and forth has been very enlightening for me. I think this is probably the best way to create policy, having this kind of an open debate. Quite frankly, I want to thank the chairman and the ranking member for this opportunity in this very, very important policy that we are establishing here that the President wants. I think that is what is exciting about this whole thing.

In the development of this vast arena of nanoscale technology, we know that its pervasiveness and ubiquitousness, its impact, is going to be greater than the debate over Y2K, because we know it will even create a greater umbrella because of this kind of technology.

It seems to be very, very logical at this point that we have one place where people who are involved in all aspects of nanoscale technology, from medicine to the hard sciences, gather together and gather information, think about this, so that they can provide information, educate the public, utilizing the current structure that is being developed right now through this bill.

So I would like to respectfully add my voice in support for this amendment in that we are expanding actually the whole world in this very important bill, and that we do this carefully and cautiously, but with some forethought that this debate is creating.

Mr. BOEHLERT. Mr. Chairman, will the gentleman yield?

Mr. HONDA. I yield to the gentleman from New York.

Mr. BOEHLERT. Mr. Chairman, let me observe here that I am not unwilling to spend the taxpayers' money for a good reason, to support a wide range of programs that provide for a better lifestyle and improvement in our society.

□ 1430

But one of the reasons why our government is so big and so all-pervasive is that we have a bill like this and we say, now, we want everybody involved in a national nanotechnology initiative to be concerned about societal and ethical concerns; and we want all of these grants, and we want the grantees to pay attention to that. Then we say, in addition to that, we are going to build this new center over here, and I do not think we need the new center.

If we were silent on this very important subject area in the rest of the bill, then I would probably be jumping up and down in support of the Jackson-Lee amendment, but we are not silent. We have had the whole history of our committee deliberations, the whole history of this floor debate, and congressional intent is very important and it is clear in our intent: we want to address societal and ethical concerns. But there are going to be a whole bunch of people financed by the Federal Government saying that we do not need a brand-new center to do it.

Mr. HALL. Mr. Chairman, will the gentleman yield?

Mr. HONDA. I yield to the gentleman from Texas.

Mr. HALL. Mr. Chairman, I would say to the gentleman that I have assured the gentlewoman from Texas (Ms. JACKSON-LEE) that we will give her representation at conference, and I have the greatest belief that the chairman will give us his ear during that time and as much support as he feels is justified at the time and under the circumstances. I am happy to do that for the gentlewoman's amendment.

Ms. JACKSON-LEE of Texas. Mr. Chairman, will the gentleman yield?

Mr. HONDA. I yield to the gentlewoman from Texas.

Ms. JACKSON-LEE of Texas. Mr. Chairman, let me thank the ranking member who indicated that he would address this question on behalf of this amendment in conference. It is an important concept. So I would like to, at this time, Mr. Chairman, emphasize that ethics must be part of science and technology; and to ensure that happens, I ask unanimous consent to withdraw this amendment at this time so that we can pursue this in conference and have the opportunity to do this on behalf of the American people in the right way so that science comes out the right way and that we protect this kind of science with the ethical and societal and educational concerns.

The CHAIRMAN pro tempore (Mr. OTTER). Is there objection to the request of the gentlewoman from Texas?

There was no objection.

Mr. HOLT. Mr. Chairman, I move to strike the last word.

Mr. Chairman, I support the Nanotechnology Research and Development Act and applaud the gentleman from California (Mr. HONDA), the gentleman from New York (Mr. BOEHLERT), the gentleman from Texas (Mr. HALL), and the committee for bringing this up.

This bill goes a long way with its scholarship programs, with its multidepartmental authorization, with an increase in the authorized amount to promote this really very important area of research and development.

Now, it is curious that the floor schedule here has tomorrow and Friday reserved for discussion of the economic stimulus plan. Let me suggest that they are off by at least a day. The real piece of economic stimulus legislation that will be considered this week, that will really stimulate the economy, is right here before us today.

Now, make no mistake, that investment in research and development is the single most effective way to provide for economic growth. Now, economists will argue about the amount of return on investment in research and development. They will say maybe it is 40 percent; maybe it is 60 percent. Whatever it is, it is very good. We have

all heard the figures, that half of the U.S. economic growth over the past 5 decades has been due to advances in technology. Nearly two-thirds of the papers cited in recent patents were published by researchers at organizations supported by Federal funds, and that makes the point that there really is a Federal role here; and that is why we should be doing legislation such as the nanotechnology act.

Investment in R&D has proved to be one of the very best returns that we can get on taxpayers' money. And although it is difficult to quantify the returns, we know it is good. A small investment, in this case in small technology, will lead to very big payoffs.

And nanotechnology cuts across traditional academic disciplines. That is one of the great appeals of this kind of research. Providing for a next generation of imaging devices, for sensors, for biological and chemical work, including biological and chemicals weapons work, to detect pathogens, to detect weapons that might be used against us; and smart materials that will be used in everything from the Space Shuttle to the bicycle.

In New Jersey we have recognized this, and the State and industry are making a significant investment in our nanotechnology centers which have been associated with Lucent and Bell Labs. And this bill before us today in Congress will help train the next generation of skilled workers to keep the U.S. in the forefront of technology and help stem the flow of research and development centers to overseas locations.

So as we debate this week the best way to have a strong economy, let me say this will go a lot farther than any of the tax cuts that have been proposed. This will provide real growth, growth in productivity, growth in education. This is where we should be putting our money, and I am pleased to see the committee give its support to this important technology. I think the nanotechnology bill will lead to innovation, to education, and to economic growth. We should all get behind it.

SEQUENTIAL VOTES POSTPONED IN COMMITTEE OF THE WHOLE

The CHAIRMAN pro tempore. Pursuant to clause 6 of rule XVIII, proceedings will now resume on those amendments on which further proceedings were postponed in the following order: amendment No. 1 offered by the gentleman from Texas (Mr. BELL) and amendment No. 2 offered by the gentleman from Texas (Mr. BELL.)

The Chair will reduce to 5 minutes the time for any electronic vote after the first vote in this series.

AMENDMENT NO. 1 OFFERED BY MR. BELL

The CHAIRMAN pro tempore. The pending business is the demand for a recorded vote on amendment No. 1 offered by the gentleman from Texas (Mr. BELL) on which further proceedings were postponed and on which the noes prevailed by voice vote.

The Clerk will redesignate the amendment.

The Clerk redesignated the amendment.

RECORDED VOTE

The CHAIRMAN pro tempore. A recorded vote has been demanded.

A recorded vote was ordered.

The vote was taken by electronic device, and there were—ayes 209, noes 214, not voting 11, as follows:

[Roll No. 165]

AYES—209

Abercrombie
Ackerman
Alexander
Allen
Andrews
Baca
Baird
Baldwin
Ballance
Becerra
Bell
Bereuter
Berkley
Berman
Berry
Bishop (GA)
Bishop (NY)
Blumenauer
Boswell
Boucher
Boyd
Brady (PA)
Brown (OH)
Brown, Corrine
Capps
Capuano
Cardin
Cardoza
Carson (OK)
Case
Clay
Clyburn
Conyers
Cooper
Costello
Cramer
Crowley
Cummings
Davis (AL)
Davis (CA)
Davis (FL)
Davis (IL)
Davis (TN)
DeFazio
DeGette
Delahunt
DeLauro
Deutsch
Dicks
Doggett
Dooley (CA)
Doyle
Edwards
Emanuel
Engel
Eshoo
Etheridge
Evans
Farr
Fattah
Filner
Ford
Frank (MA)
Frost
Gonzalez
Gordon
Green (TX)
Grijalva
Gutierrez
Hall
Harman
Hastings (FL)
Hefley
Hill
Hinchey
Hinojosa
Hoeffel
Holden
Holt
Honda
Hooley (OR)
Houghton
Hoyer
Inslee
Israel
Jackson (IL)
Jackson-Lee (TX)
Jefferson
John
Johnson, E. B.
Jones (OH)
Kanjorski
Kaptur
Kennedy (RI)
Kildee
Kilpatrick
Kind
Kleczka
Kucinich
Lampson
Langevin
Lantos
Larsen (WA)
Larson (CT)
Lee
Levin
Lewis (GA)
Lipinski
Lofgren
Lowey
Lucas (KY)
Lynch
Majette
Maloney
Markey
Marshall
Matheson
Matsui
McCarthy (MO)
McCarthy (NY)
McCollum
McDermott
McGovern
McIntyre
McNulty
Meehan
Meek (FL)
Meeks (NY)
Menendez
Michaud
Millender-McDonald
Miller (NC)
Miller, George
Mollohan
Moore
Moran (VA)
Murtha
Nadler
Napolitano
Neal (MA)
Oberstar
Obey
Olver
Ortiz
Owens
Pallone
Pascrell
Pastor
Payne
Pelosi
Peterson (MN)
Pomeroy
Porter
Price (NC)
Rahall
Ramstad
Rangel
Reyes
Rodriguez
Ross
Rothman
Roybal-Allard
Ruppersberger
Rush
Ryan (OH)
Sabo
Sanchez, Linda T.
Sanchez, Loretta
Sanders
Sandlin
Schakowsky
Schiff
Scott (GA)
Scott (VA)
Serrano
Sherman
Skelton
Slaughter
Smith (WA)
Snyder
Solis
Spratt
Stark
Stenholm
Strickland
Stupak
Sweeney
Tanner
Tauscher
Taylor (MS)
Thompson (CA)
Thompson (MS)
Tierney
Towns
Turner (TX)
Udall (CO)
Udall (NM)
Van Hollen
Velazquez
Visclosky
Waters
Watson
Watt
Waxman
Weiner
Wexler
Woolsey
Wu
Wynn

NOES—214

Aderholt
Akin
Bachus
Baker
Ballenger
Barrett (SC)
Bartlett (MD)
Barton (TX)
Bass
Beauprez
Biggert
Bilirakis
Bishop (UT)
Blackburn
Blunt
Boehlert
Boehner
Bonilla
Bonner
Bono
Boozman
Bradley (NH)
Brady (TX)
Brown (SC)
Brown-Waite, Ginny
Burgess
Burns
Burr
Burton (IN)
Buyer
Calvert
Camp
Cannon
Cantor
Capito
Carter
Castle
Chabot
Chocola
Coble
Cole
Collins
Combest
Cox
Crane
Crenshaw
Cubin
Culberson
Cunningham
Davis, Jo Ann
Davis, Tom
Deal (GA)
DeMint
Diaz-Balart, L.
Diaz-Balart, M.
Doolittle
Dreier
Duncan
Dunn
Ehlers
Emerson
English
Everett
Feeney
Ferguson
Flake
Fletcher
Foley
Forbes
Fossella
Franks (AZ)
Frelinghuysen
Gallegly
Garrett (NJ)
Gerlach
Gibbons
Gilchrest
Gillmor
Gingrey
Goode
Goodlatte
Goss
Granger
Graves
Green (WI)
Greenwood
Gutknecht
Harris
Hart
Hastings (WA)
Hayes
Hayworth
Hensarling
Herger
Hobson
Hoekstra
Hostettler
Hulshof
Hunter
Isakson
Istook
Janklow
Jenkins
Johnson (CT)
Johnson (IL)
Johnson, Sam
Jones (NC)
Keller
Kelly
Kennedy (MN)
King (IA)
King (NY)
Kingston
Kirk
Kline
Knollenberg
Kolbe
LaHood
Latham
LaTourette
Leach
Lewis (CA)
Lewis (KY)
Linder
LoBiondo
Lucas (OK)
Manzullo
McCotter
McCrery
McHugh
McInnis
McKeon
Mica
Miller (FL)
Miller (MI)
Moran (KS)
Murphy
Musgrave
Myrick
Nethercutt
Ney
Northup
Norwood
Nunes
Nussle
Osborne
Ose
Otter
Oxley
Paul
Pearce
Pence
Peterson (PA)
Petri
Pickering
Pitts
Platts
Pombo
Portman
Pryce (OH)
Putnam
Quinn
Radanovich
Regula
Rehberg
Renzi
Rogers (AL)
Rogers (KY)
Rohrabacher
Ros-Lehtinen
Royce
Ryan (WI)
Ryun (KS)
Saxton
Schrock
Sensenbrenner
Sessions
Shadegg
Shaw
Shays
Sherwood
Shimkus
Shuster
Simmons
Simpson
Smith (MI)
Smith (NJ)
Smith (TX)
Souder
Stearns
Sullivan
Tancredo
Taylor (NC)
Terry
Thomas
Thornberry
Tiahrt
Tiberi
Toomey
Turner (OH)
Upton
Vitter
Walden (OR)
Walsh
Wamp
Weldon (FL)
Weldon (PA)
Weller
Whitfield
Wicker
Wilson (NM)
Wilson (SC)
Wolf
Young (AK)

NOT VOTING—11

Carson (IN)
DeLay
Dingell
Gephardt
Hyde
Issa
Miller, Gary
Reynolds
Rogers (MI)
Tauzin
Young (FL)

ANNOUNCEMENT BY THE CHAIRMAN PRO TEMPORE

the CHAIRMAN pro tempore (Mr. OTTER)(during the vote). The Chair will announce there are 2 minutes remaining in this vote.

□ 1458

Messrs. MURPHY, EVERETT, TANCREDO, QUINN, WHITFIELD, BAKER, BONILLA, GARRETT, BALLENGER and THOMAS and Mrs. CUBIN and Mrs. KELLY changed their vote from ''aye'' to ''no.''

Mr. JOHN, Ms. ROYBAL-ALLARD, and Mr. MOLLOHAN changed their vote from ''no'' to ''aye.''

So the amendment was rejected.

The result of the vote was announced as above recorded.

AMENDMENT NO. 2 OFFERED BY MR. BELL

The CHAIRMAN pro tempore. The pending business is the demand for a recorded vote on the amendment offered by the gentleman from Texas

(Mr. BELL) on which further proceedings were postponed and on which the noes prevailed by voice vote.

The Clerk will redesignate the amendment.

The Clerk redesignated the amendment.

RECORDED VOTE

The CHAIRMAN pro tempore. A recorded vote has been demanded.

A recorded vote was ordered.

The CHAIRMAN pro tempore. This will be a 5-minute vote.

The vote was taken by electronic device, and there were—ayes 207, noes 217, not voting 10, as follows:

[Roll No. 166]

AYES—207

Abercrombie
Ackerman
Alexander
Allen
Andrews
Baca
Baird
Baldwin
Ballance
Becerra
Bell
Berkley
Berman
Berry
Bishop (GA)
Bishop (NY)
Blumenauer
Boswell
Boucher
Boyd
Brady (PA)
Brown (OH)
Brown, Corrine
Capps
Capuano
Cardin
Cardoza
Carson (OK)
Case
Clay
Clyburn
Cole
Conyers
Cooper
Costello
Cramer
Crowley
Cummings
Davis (AL)
Davis (CA)
Davis (FL)
Davis (IL)
Davis (TN)
DeFazio
DeGette
Delahunt
DeLauro
Deutsch
Dicks
Doggett
Dooley (CA)
Doyle
Edwards
Emanuel
Engel
Eshoo
Etheridge
Evans
Farr
Fattah
Filner
Ford
Frank (MA)
Frost
Gonzalez
Gordon
Green (TX)
Grijalva
Gutierrez
Hall
Harman
Hastings (FL)
Hill
Hinchey
Hinojosa
Hoeffel
Holden
Holt
Honda
Hooley (OR)
Hoyer
Inslee
Israel
Jackson (IL)
Jackson-Lee (TX)
Jefferson
John
Johnson, E. B.
Jones (OH)
Kanjorski
Kaptur
Kennedy (RI)
Kildee
Kilpatrick
Kind
Kleczka
Kucinich
Lampson
Langevin
Lantos
Larsen (WA)
Larson (CT)
Lee
Levin
Lewis (GA)
Lipinski
Lofgren
Lowey
Lucas (KY)
Lynch
Majette
Maloney
Markey
Marshall
Matheson
Matsui
McCarthy (MO)
McCarthy (NY)
McCollum
McDermott
McGovern
McIntyre
McNulty
Meehan
Meek (FL)
Meeks (NY)
Menendez
Michaud
Millender-McDonald
Miller (NC)
Miller, George
Mollohan
Moore
Moran (VA)
Murtha
Nadler
Napolitano
Neal (MA)
Oberstar
Obey
Olver
Ortiz
Owens
Pallone
Pascrell
Pastor
Payne
Pelosi
Peterson (MN)
Pomeroy
Porter
Price (NC)
Rahall
Ramstad
Rangel
Reyes
Rodriguez
Ross
Rothman
Roybal-Allard
Ruppersberger
Rush
Ryan (OH)
Sabo
Sanchez, Linda T.
Sanchez, Loretta
Sanders
Sandlin
Schakowsky
Schiff
Scott (GA)
Scott (VA)
Serrano
Sherman
Skelton
Slaughter
Smith (WA)
Snyder
Solis
Spratt
Stark
Stenholm
Strickland
Stupak
Tancredo
Tanner
Tauscher
Taylor (MS)
Thompson (CA)
Thompson (MS)
Tierney
Towns
Turner (TX)
Udall (CO)
Udall (NM)
Van Hollen
Velazquez
Visclosky
Waters
Watson
Watt
Waxman
Weiner
Wexler
Woolsey
Wu
Wynn

NOES—217

Aderholt
Akin
Bachus
Baker
Ballenger
Barrett (SC)
Bartlett (MD)
Barton (TX)
Bass
Beauprez
Bereuter
Biggert
Bilirakis
Bishop (UT)
Blackburn
Blunt
Boehlert
Boehner
Bonilla
Bonner
Bono
Boozman
Bradley (NH)
Brady (TX)
Brown (SC)
Brown-Waite, Ginny
Burgess
Burns
Burr
Burton (IN)
Buyer
Calvert
Camp
Cannon
Cantor
Capito
Carter
Castle
Chabot
Chocola
Coble
Collins
Combest
Cox
Crane
Crenshaw
Cubin
Culberson
Cunningham
Davis, Jo Ann
Davis, Tom
Deal (GA)
DeMint
Diaz-Balart, L.
Diaz-Balart, M.
Doolittle
Dreier
Duncan
Dunn
Ehlers
Emerson
English
Everett
Feeney
Ferguson
Flake
Fletcher
Foley
Forbes
Fossella
Franks (AZ)
Frelinghuysen
Gallegly
Garrett (NJ)
Gerlach
Gibbons
Gilchrest
Gillmor
Gingrey
Goode
Goodlatte
Goss
Granger
Graves
Green (WI)
Greenwood
Gutknecht
Harris
Hart
Hastings (WA)
Hayes
Hayworth
Hefley
Hensarling
Herger
Hobson
Hoekstra
Hostettler
Houghton
Hulshof
Hunter
Isakson
Issa
Istook
Janklow
Jenkins
Johnson (CT)
Johnson (IL)
Johnson, Sam
Jones (NC)
Keller
Kelly
Kennedy (MN)
King (IA)
King (NY)
Kingston
Kirk
Kline
Knollenberg
Kolbe
LaHood
Latham
LaTourette
Leach
Lewis (CA)
Lewis (KY)
Linder
LoBiondo
Lucas (OK)
Manzullo
McCotter
McCrery
McHugh
McInnis
McKeon
Mica
Miller (FL)
Miller (MI)
Moran (KS)
Murphy
Musgrave
Myrick
Nethercutt
Ney
Northup
Norwood
Nunes
Nussle
Osborne
Ose
Otter
Oxley
Paul
Pearce
Pence
Peterson (PA)
Petri
Pickering
Pitts
Platts
Pombo
Portman
Pryce (OH)
Putnam
Quinn
Radanovich
Regula
Rehberg
Renzi
Rogers (AL)
Rogers (KY)
Rohrabacher
Ros-Lehtinen
Royce
Ryan (WI)
Ryun (KS)
Saxton
Schrock
Sensenbrenner
Sessions
Shadegg
Shaw
Shays
Sherwood
Shimkus
Shuster
Simmons
Simpson
Smith (MI)
Smith (NJ)
Smith (TX)
Souder
Stearns
Sullivan
Sweeney
Taylor (NC)
Terry
Thomas
Thornberry
Tiahrt
Tiberi
Toomey
Turner (OH)
Upton
Vitter
Walden (OR)
Walsh
Wamp
Weldon (FL)
Weldon (PA)
Weller
Whitfield
Wicker
Wilson (NM)
Wilson (SC)
Wolf
Young (AK)

NOT VOTING—10

Carson (IN)
DeLay
Dingell
Gephardt
Hyde
Miller, Gary
Reynolds
Rogers (MI)
Tauzin
Young (FL)

ANNOUNCEMENT BY THE CHAIRMAN PRO TEMPORE

The CHAIRMAN pro tempore (Mr. OTTER) (during the vote). The Chair would advise there are 2 minutes left in this vote.

□ 1505

So the amendment was rejected.

The result of the vote was announced as above recorded.

The CHAIRMAN pro tempore. Are there any other amendments? If not, the question is on the committee amendment in the nature of a substitute, as amended.

The committee amendment in the nature of a substitute, as amended, was agreed to.

The CHAIRMAN pro tempore. Under the rule, the Committee rises.

Accordingly, the Committee rose; and the Speaker pro tempore (Mr. QUINN) having assumed the chair, Mr. OTTER, Chairman pro tempore of the Committee of the Whole House on the State of the Union, reported that that Committee, having had under consideration the bill (H.R. 766) to provide for a National Nanotechnology Research and Development Program, and for other purposes, pursuant to House Resolution 219, he reported the bill back to the House with an amendment adopted by the Committee of the Whole.

The SPEAKER pro tempore. Under the rule, the previous question is ordered.

Is a separate vote demanded on the amendment to the committee amendment in the nature of a substitute adopted by the Committee of the Whole? If not, the question is on the committee amendment in the nature of a substitute.

The committee amendment in the nature of a substitute was agreed to.

The SPEAKER pro tempore. The question is on the engrossment and third reading of the bill.

The bill was ordered to be engrossed and read a third time, and was read the third time.

The SPEAKER pro tempore. The question is on the passage of the bill.

The question was taken; and the Speaker pro tempore announced that the ayes appeared to have it.

Mr. BOEHLERT. Mr. Speaker, on that I demand the yeas and nays.

The yeas and nays were ordered.

The SPEAKER pro tempore. Pursuant to clause 8 of rule XX, this 15-minute vote will be followed by a series of two 5-minute votes on motions to suspend the rules postponed earlier this afternoon.

The vote was taken by electronic device, and there were—yeas 405, nays 19, not voting 10, as follows:

[Roll No. 167]

YEAS—405

Abercrombie
Ackerman
Aderholt
Akin
Alexander
Allen
Andrews
Baca
Bachus
Baird
Baker
Baldwin
Ballance
Ballenger
Barrett (SC)
Bartlett (MD)
Barton (TX)
Bass
Beauprez
Becerra
Bell
Bereuter
Berkley
Berman
Berry
Biggert
Bilirakis
Bishop (GA)
Bishop (NY)
Bishop (UT)
Blackburn
Blumenauer
Blunt
Boehlert
Boehner
Bonilla
Bonner
Bono
Boozman
Boswell
Boucher
Boyd
Bradley (NH)
Brady (PA)
Brady (TX)
Brown (OH)
Brown (SC)
Brown, Corrine
Brown-Waite, Ginny
Burgess
Burns
Burr
Burton (IN)
Buyer
Calvert
Camp
Cantor
Capito
Capps
Capuano
Cardin
Cardoza
Carson (OK)
Carter
Case
Castle
Chabot
Chocola
Clay
Clyburn
Cole
Combest
Conyers
Cooper
Costello
Cox
Cramer
Crane
Crenshaw
Crowley
Culberson
Cummings
Cunningham
Davis (AL)
Davis (CA)
Davis (FL)
Davis (IL)
Davis (TN)
Davis, Jo Ann

Davis, Tom
DeFazio
DeGette
Delahunt
DeLauro
DeMint
Deutsch
Diaz-Balart, L.
Diaz-Balart, M.
Dicks
Doggett
Dooley (CA)
Doolittle
Doyle
Dreier
Dunn
Edwards
Ehlers
Emanuel
Emerson
Engel
English
Eshoo
Etheridge
Evans
Farr
Fattah
Feeney
Ferguson
Filner
Fletcher
Foley
Forbes
Ford
Fossella
Frank (MA)
Frelinghuysen
Frost
Gallegly
Garrett (NJ)
Gerlach
Gibbons
Gilchrest
Gillmor
Gingrey
Gonzalez
Goode
Goodlatte
Gordon
Goss
Granger
Graves
Green (TX)
Green (WI)
Greenwood
Grijalva
Gutierrez
Gutknecht
Hall
Harman
Harris
Hart
Hastings (FL)
Hastings (WA)
Hayes
Hayworth
Hensarling
Herger
Hill
Hinchey
Hinojosa
Hobson
Hoeffel
Hoekstra
Holden
Holt
Honda
Hooley (OR)
Houghton
Hoyer
Hulshof
Hunter
Inslee
Isakson
Israel
Issa
Istook
Jackson (IL)
Janklow
Jefferson
Jenkins
John
Johnson (CT)
Johnson (IL)
Johnson, E. B.
Johnson, Sam
Jones (NC)
Jones (OH)
Kanjorski
Kaptur
Keller
Kelly
Kennedy (MN)
Kennedy (RI)
Kildee
Kilpatrick
Kind
King (IA)
King (NY)
Kingston
Kirk
Kleczka
Kline
Knollenberg
Kolbe
Kucinich
LaHood
Lampson
Langevin
Lantos
Larsen (WA)
Larson (CT)
Latham
LaTourette
Leach
Lee
Levin
Lewis (CA)
Lewis (GA)
Lewis (KY)
Linder
Lipinski
LoBiondo
Lofgren
Lowey
Lucas (KY)
Lucas (OK)
Lynch
Majette
Maloney
Manzullo
Markey
Marshall
Matheson
Matsui
McCarthy (MO)
McCarthy (NY)
McCollum
McCotter
McCrery
McDermott
McGovern
McHugh
McInnis
McIntyre
McKeon
McNulty
Meehan
Meek (FL)
Meeks (NY)
Menendez
Mica
Michaud
Millender-McDonald
Miller (MI)
Miller (NC)
Mollohan
Moore
Moran (KS)
Moran (VA)
Murphy
Murtha
Myrick
Nadler
Napolitano
Neal (MA)
Nethercutt
Ney
Northup
Norwood
Nunes
Nussle
Oberstar
Obey
Olver
Ortiz
Osborne
Ose
Otter
Owens
Oxley
Pallone
Pascrell
Pastor
Payne
Pearce
Pelosi
Pence
Peterson (MN)
Peterson (PA)
Pickering
Pitts
Platts
Pombo
Pomeroy
Porter
Portman
Price (NC)
Pryce (OH)
Putnam
Quinn
Radanovich
Rahall
Ramstad
Rangel
Regula
Rehberg
Renzi
Reyes
Rodriguez
Rogers (AL)
Rogers (KY)
Rogers (MI)
Rohrabacher
Ros-Lehtinen
Ross
Rothman
Roybal-Allard
Ruppersberger
Rush
Ryan (OH)
Ryan (WI)
Ryun (KS)
Sabo
Sanchez, Linda T.
Sanchez, Loretta
Sanders
Sandlin
Saxton
Schakowsky
Schiff
Schrock
Scott (GA)
Scott (VA)
Serrano
Sessions
Shaw
Shays
Sherman
Sherwood
Shimkus
Shuster
Simmons
Simpson
Skelton
Slaughter
Smith (MI)
Smith (NJ)
Smith (TX)
Smith (WA)
Snyder
Solis
Souder
Spratt
Stark
Stearns
Stenholm
Strickland
Stupak
Sullivan
Sweeney
Tanner
Tauscher
Tauzin
Taylor (MS)
Taylor (NC)
Terry
Thomas
Thompson (CA)
Thompson (MS)
Thornberry
Tiahrt
Tiberi
Tierney
Toomey
Towns
Turner (OH)
Turner (TX)
Udall (CO)
Udall (NM)
Upton
Van Hollen
Velazquez
Visclosky
Vitter
Walden (OR)
Walsh
Wamp
Waters
Watson
Watt
Waxman
Weiner
Weldon (FL)
Weldon (PA)
Weller
Wexler
Whitfield
Wicker
Wilson (NM)
Wilson (SC)
Wolf
Woolsey
Wu
Wynn
Young (AK)

NAYS—19

Cannon
Coble
Collins
Cubin
Deal (GA)
Duncan
Everett
Flake
Franks (AZ)
Hefley
Hostettler
Miller (FL)
Musgrave
Paul
Petri
Royce
Sensenbrenner
Shadegg
Tancredo

NOT VOTING—10

Carson (IN)
DeLay
Dingell
Gephardt
Hyde
Jackson-Lee (TX)
Miller, Gary
Miller, George
Reynolds
Young (FL)

ANNOUNCEMENT BY THE SPEAKER PRO TEMPORE

The SPEAKER pro tempore (Mr. QUINN) (during the vote). Members are advised 2 minutes remain in this vote.

□ 1523

Mr. TANCREDO changed his vote from ''yea'' to ''nay.''

So the bill was passed.

The result of the vote was announced as above recorded.

A motion to reconsider was laid on the table.

ANNOUNCEMENT BY THE SPEAKER PRO TEMPORE

The SPEAKER pro tempore. Pursuant to clause 8 of rule XX, proceedings will resume on motions to suspend the rules previously postponed.

Votes will be taken in the following order:

H. Con. Res. 53, as amended, by the yeas and nays; and

H.R. 866, by the yeas and nays.

Postponed votes on H.R. 874 and House Resolution 213 will be taken tomorrow. The following votes will be conducted as 5-minute votes.

AUTHORIZING USE OF CAPITOL GROUNDS FOR GREATER WASHINGTON SOAP BOX DERBY

The SPEAKER pro tempore. The pending business is the question of suspending the rules and agreeing to the concurrent resolution, H. Con. Res. 53, as amended.

The Clerk read the title of the concurrent resolution.

The SPEAKER pro tempore. The question is on the motion offered by the gentleman from Ohio (Mr. LATOURETTE) that the House suspend the rules and agree to the concurrent resolution, H. Con. Res. 53, as amended, on which the yeas and nays are ordered.

This will be a 5-minute vote.

The vote was taken by electronic device, and there were—yeas 422, nays 0, not voting 12, as follows:

[Roll No. 168]

YEAS—422

Abercrombie
Ackerman
Aderholt
Akin
Alexander
Allen
Andrews
Baca
Bachus
Baird
Baker
Baldwin
Ballance
Ballenger
Barrett (SC)
Bartlett (MD)
Barton (TX)
Bass
Beauprez
Becerra
Bell
Bereuter
Berkley
Berman
Berry
Biggert
Bilirakis
Bishop (GA)
Bishop (NY)
Bishop (UT)
Blackburn
Blumenauer
Blunt
Boehlert
Boehner
Bonilla
Bonner
Bono
Boozman
Boswell
Boucher
Boyd
Bradley (NH)
Brady (PA)
Brady (TX)
Brown (OH)
Brown (SC)
Brown, Corrine
Brown-Waite, Ginny
Burgess
Burns
Burr
Burton (IN)
Buyer
Calvert
Camp
Cannon
Cantor
Capito
Capps
Capuano
Cardin
Cardoza
Carson (OK)
Carter
Case
Castle
Chabot
Chocola
Clay
Clyburn
Coble
Cole
Collins
Combest
Conyers
Cooper
Costello
Cox
Cramer
Crane
Crenshaw
Crowley
Cubin
Culberson
Cummings
Cunningham
Davis (AL)
Davis (CA)
Davis (FL)
Davis (IL)
Davis (TN)
Davis, Jo Ann
Davis, Tom
Deal (GA)
DeFazio
DeGette
Delahunt
DeLauro
DeMint
Deutsch
Diaz-Balart, L.
Diaz-Balart, M.
Dicks
Doggett
Dooley (CA)
Doolittle
Doyle
Dreier
Duncan
Dunn
Edwards
Ehlers
Emanuel
Emerson
Engel
English
Eshoo
Etheridge
Evans
Everett
Farr
Fattah
Feeney
Ferguson
Filner
Flake
Fletcher
Foley
Forbes
Ford
Fossella
Frank (MA)
Franks (AZ)
Frelinghuysen
Frost
Gallegly
Garrett (NJ)
Gerlach
Gibbons
Gilchrest
Gillmor
Gingrey
Gonzalez
Goode
Goodlatte
Gordon
Goss
Granger
Graves
Green (TX)
Green (WI)
Greenwood
Grijalva
Gutierrez
Gutknecht
Hall
Harman
Harris
Hart
Hastings (FL)
Hastings (WA)
Hayes
Hayworth
Hefley
Hensarling
Herger
Hill
Hinchey
Hinojosa
Hobson
Hoeffel
Hoekstra
Holden
Holt
Honda
Hooley (OR)
Hostettler
Houghton
Hoyer
Hulshof
Hunter
Inslee
Isakson
Israel
Issa
Istook
Jackson (IL)
Janklow
Jefferson
Jenkins
John
Johnson (CT)
Johnson (IL)
Johnson, E. B.
Johnson, Sam
Jones (NC)
Jones (OH)
Kanjorski
Kaptur
Keller
Kelly
Kennedy (MN)
Kildee
Kilpatrick
Kind
King (IA)
King (NY)
Kingston
Kirk
Kleczka
Kline
Knollenberg
Kolbe
Kucinich
LaHood
Lampson
Langevin
Lantos
Larsen (WA)
Larson (CT)
Latham
LaTourette
Leach
Lee
Levin
Lewis (CA)
Lewis (GA)
Lewis (KY)
Linder
Lipinski
LoBiondo
Lofgren
Lowey
Lucas (KY)
Lucas (OK)
Lynch
Majette
Maloney
Manzullo
Markey
Marshall
Matheson
Matsui
McCarthy (MO)
McCarthy (NY)
McCollum
McCotter
McCrery
McGovern
McHugh
McInnis
McIntyre
McKeon
McNulty
Meehan
Meek (FL)
Meeks (NY)
Menendez
Mica
Michaud
Millender-McDonald
Miller (FL)
Miller (MI)
Miller (NC)
Mollohan
Moore
Moran (KS)
Moran (VA)
Murphy
Murtha
Musgrave
Myrick
Nadler
Napolitano
Neal (MA)
Nethercutt
Ney
Northup
Norwood
Nunes
Nussle
Oberstar
Obey
Olver
Ortiz
Osborne
Ose
Otter
Owens
Oxley
Pallone
Pascrell
Pastor
Paul
Payne
Pearce
Pelosi
Pence
Peterson (MN)
Peterson (PA)
Petri
Pickering
Pitts