

U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY

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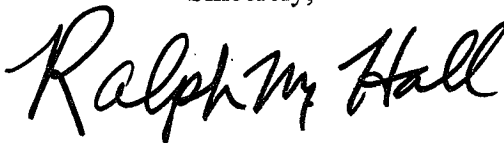
March 18, 2011

The Honorable Paul Ryan
Chairman, Committee on the Budget
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

Pursuant to the provisions of clause 4(f) of House Rule X of the Rules of the House of Representatives for the 112th Congress and Section 301(d) of the Congressional Budget Act of 1974, as amended, I am transmitting the Views and Estimates, including Additional and Minority Views, of the Committee on Science, Space, and Technology for Fiscal Year 2012.

Sincerely,



Ralph M. Hall
Chairman

Enclosure

cc: The Honorable Chris Van Hollen, Ranking Member, Committee on the Budget
The Honorable Eddie Bernice Johnson, Ranking Member, Committee on Science, Space,
and Technology

**VIEWS AND ESTIMATES
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY
FISCAL YEAR 2012**

President Obama transmitted his budget request for Fiscal Year 2012 (FY12) to Congress on February 14, 2011. The President proposes \$38.9 billion in FY12 for all non-defense and non-health specific research and development, a 10.8 percent increase over the FY10 enacted level. This amount includes basic and applied research, development, and facilities and equipment.

The Committee on Science, Space, and Technology supports funding research and development activities and believes that wise investments, coupled with favorable tax cuts and reduced regulations, can lead to economic growth and innovation. However, we are mindful that in order to realize gains on investment, the nation needs to be on a sound economic footing. Our nation is currently in a challenging economic environment. The Congressional Budget Office estimates that Federal spending will rise to \$3.7 trillion or 25 percent of GDP this year. We are running a deficit of \$1.5 trillion and our gross Federal debt now exceeds \$14 trillion. These levels are truly unsustainable. We need to begin to address this challenge by reducing spending and finding ways to cut unnecessary, duplicative, and wasteful programs so that we deliver the most efficient and effective programs for the country.

The following are the views of the Committee on Science, Space, and Technology on the budget for programs within the Committee's jurisdiction.

National Aeronautics and Space Administration (NASA)

The National Aeronautics and Space Administration (NASA) is the Nation's primary civilian space and aeronautics research and development agency, carrying out a diverse set of missions and projects designed to expand our understanding of Earth, the Solar System, and the universe. NASA operates the Space Shuttle fleet, the International Space Station, and a number of satellites in orbit around Earth and throughout the solar system. It also undertakes activities in technology development and transfer, education, outreach, and participates in a number of interagency initiatives such as nanotechnology, information technology, climate change research, and the Next Generation Air Transportation (NextGen) program.

The Committee supports NASA's FY12 budget request of \$18.7 billion, the same amount appropriated by Congress for FY10 and continued thus far in FY11.

NASA's budget requests also display budget assumptions for the succeeding four out-years, giving Congress an indication of near-term spending plans for programs, projects and activities. The FY12 budget request assumes a flat spending profile through FY16, while last year's budget (and associated out-years) assumed annual increases such that by FY16, NASA would be receiving over \$20 billion annually. The potential savings indicated in the FY12 budget request would, in the aggregate, save \$3.8 billion for FY12 – FY14, compared to last year's budget request.

NASA's FY12 request qualified their out-year assumptions as "notional." However, NASA's "notional" assumptions are significantly higher than the corresponding numbers used in OMB's FY12 U.S. Budget request (OMB's Blue Books) by an aggregate of \$2.3 billion. NASA officials advised the Committee that they are using their higher out-year assumptions for planning purposes.

Requested funding levels for NASA's space science program are relatively flat, going up an additional \$11 million between the FY11 and FY12 requests, amounting to a 0.2% increase. Within the Science Mission Directorate (SMD), the James Webb Space Telescope (JWST) has run into serious cost and schedule challenges. NASA is intent on finding resources within the SMD account to remedy the problem, a solution we endorse.

With respect to Earth Science, which is a program within SMD, in the FY11 budget request (including the outyears) Committee Republicans took exception to significant increases in its funding profile. We were concerned that the balance of funding within the SMD was getting out of balance to the detriment of the other SMD programs. This year's request (including the outyears) for Earth Science is substantially reduced. To stay within this profile, NASA is delaying start of two Earth Science missions (CLARREO and DESDynI). We support this change.

The most troubling aspect of this year's request lies within the agency's human space flight program (Exploration Systems Directorate and the Space Operations Mission Directorate). Last year Congress passed, and the President signed, the NASA Authorization Act of 2010 (P.L. 111-267). The bill directed NASA to give priority to development of a Space Launch System (SLS) and Multi-Purpose Crew Vehicle (MPCV) to replace the retiring Shuttle. The bill also authorized NASA to continue activities related to development of a commercial crew launch system. NASA's FY12 request flips the relative priority, seeking an amount higher than authorized for commercial crew (\$850 million versus \$500 million authorization); and underfunding development of the SLS and MPCV (\$2.8 billion versus \$4 billion authorization). By doing so, NASA will be delaying development of a government-owned assured access system to the ISS, perhaps until the end of this decade. Coupled with this is the likelihood that the yet-to-be-developed commercial crew system may fail to materialize, leaving our government with only one option: to continue buying seats from the Russians. We find this unacceptable and firmly believe NASA should give highest priority to the SLS and MPCV programs.

Finally, we note that the FY12 budget includes a new program first proposed last year: Space Technology. The FY12 request seeks \$1.02 billion to manage and develop a portfolio of technologies needed to ensure the success of future missions, as well as enabling the spinoff of NASA technologies to the private sector. We support this endeavor generally, but believe these tough budgetary times argue for a smaller initial start.

National Science Foundation (NSF)

The National Science Foundation (NSF) provides approximately 20 percent of Federal support for all basic research at U.S. colleges and universities and is second only to National Institutes of Health (NIH) in support for all academic research. It is the primary source of federal funding for non-medical basic research, providing approximately 40 percent of all federal support, and serves as a catalyst for science, technology, engineering, and mathematics (STEM) education improvement at all levels of education. It supports the fundamental investigations that ultimately serve as the foundation for progress in nationally significant areas such as national security, technology-driven economic growth, energy independence, health care, nanotechnology, and networking and information technology.

The FY12 budget request for NSF is \$7.7 billion, an increase of 13 percent, or \$894.5 million over the FY10 enacted level (not including any carryover from the \$3 billion NSF received from ARRA funding). The Committee recognizes the importance of making appropriate investments in science, space, and technology research, development, and STEM education in order for the United States to remain a world leader in competitiveness and innovation. While supporting a robust budget request for NSF, the Committee is concerned that the levels requested exceed what is fiscally responsible in the current economic climate. Further, new and expanded Administration priorities continue to excessively divert precious research and development (R&D) funds from other worthy endeavors.

The Committee applauds the Administration's decision to eliminate or reduce funding for six specific programs, but regrets that it did not go further in identifying areas for significant savings to the American taxpayer. This additional savings could go a long way in helping to protect the integrity of the Nation's essential basic R&D portfolio.

Research and Related Activities (RRA)

The FY12 budget request includes \$6.3 billion for Research and Related Activities (RRA), an increase of \$690 million or 12.4 percent over FY10 enacted. New programs established as part of the increased research funding request for FY12 include \$35 million for a nanotechnology manufacturing initiative, \$40 million in next-generation robotics technologies, and \$96 million for an interdisciplinary program to eventually replace computer chip technologies. In addition, \$87 million is requested for advanced manufacturing activities including expanded university-industry research partnerships and regional innovation ecosystems and clean energy manufacturing research. Another \$117 million is requested for "cyber-infrastructure" activities to accelerate the pace of discovery and \$12 million for a "new program that will fund a suite of activities that promote greater interdisciplinary research." Much of the funding increases are focused on manufacturing technologies and regional innovation centers. The Committee is concerned that the increased emphasis in these areas moves the Foundation from its core mission of supporting basic R&D to significantly more support for applied areas of R&D, which are best left to market forces or agencies with specific applied R&D goals to advance their mission.

As part of the Science, Engineering and Education for Sustainability (SEES) program that crosses all NSF directorates and has a goal of advancing "climate and energy science,

engineering, and education to inform the societal actions needed for environment and economic sustainability and sustainable human well-being," the FY12 budget request is \$998.1 million, an increase of \$337.5 million or 51 percent. The Committee recognizes the broad interdisciplinary activities within the SEES program, but is greatly concerned that 13 percent of the entire Foundation's budget request is being devoted to this issue, particularly given the strong emphasis on these programs across all relevant federal agencies. Further, the Committee is strongly opposed to the 144.5 percent budget request increase for the NSF contribution to the Climate Change Technology Program (CCTP) and recommends elimination of the \$10 million Climate Change Education program, as worthy climate change education proposals are certainly eligible for other education funding at the Foundation.

In addition, the FY12 budget request also includes a plan to invest broadband spectrum receipts in a variety of areas, including \$150 million to NSF in FY12 and \$1 billion total over a 5-year period for targeted research on experimental wireless technology testbeds, more flexible and efficient use of the radio spectrum, and cyber-physical systems such as wireless sensor networks for smart buildings, roads, and bridges. NSF's participation is a piece of the \$3 billion WIN fund.

Education and Human Resources (EHR)

The FY12 budget request for Education and Human Resources (EHR) is \$911 million, a \$38.4 million or 4.4 percent increase over FY10. The Administration continues to offer a mixed message regarding the treatment of EHR relative to the healthy increase for RRA. While calling for an investment of \$3.4 billion in STEM education activities across the federal government, a number of proven NSF initiatives are being eliminated, reduced, or reprogrammed to make way for new or expanded programs. Like last year's request, the FY12 budget request continues to shift a greater responsibility for STEM education to the Department of Education while maintaining NSF primarily as a research agency. The Committee agrees that NSF is primarily a research agency, but also strongly believes that an essential element of NSF's mission is support for STEM education, from pre-K through graduate school and beyond. Therefore, the Committee is concerned with this shift. We recognize that the Department of Education is better equipped to disseminate and replicate STEM programming, but the STEM-related research and expertise that NSF can and does provide is world-class and needs to be included in any appropriate larger, overarching STEM education activities carried out by the Federal government.

New funding in the FY12 budget request includes an additional \$20 million for a Transforming Broadening Participation through STEM (TBPS) pilot program to seek innovative solutions for broadening participation in STEM at the undergraduate level. This is part of an overarching realigned program called Broadening Participation at the Core (BPAC), which also houses several underrepresented population programs. The BPAC program total request is \$156 million, a \$21 million or 23.3 percent increase over FY10. Research programs focused on gender and persons with disabilities have been moved from this Division to the Division of Research on Learning in Formal and Informal Settings and funding under the request is cut by 8.7 percent to \$17 million. The Committee does not believe that a new \$20 million pilot program is warranted at this time, given the budgetary constraints our country is facing. Further,

the Committee is concerned that funding for the Human Resources Division has increased by more than 15 percent while the focus of the Division does not include all underrepresented populations.

Additionally, the FY12 budget request includes \$40 million in funding for a new teacher-training research and development program, split evenly between K-12 teachers and undergraduate teachers. At the same time, the budget request for Noyce Scholarships is \$45 million, a decrease of \$10 million or 18.2 percent and the Math and Science Partnership is \$48.2 million, also a decrease of \$10 million or 17.2 percent. Likewise, the Administration's budget request places a high priority on Graduate Research Fellowships (GRF) by increasing the funding to \$134.6 million, a 31.2 percent increase over FY10, while essentially flatlining the Integrative Graduate Education and Research Traineeship Program (IGERT) at \$30.17 million and greatly diminishing the Graduate STEM Fellows in K-12 Education (GK-12) to \$27 million, a 45 percent cut. The Committee understands the need to make cuts, but believes that Noyce Scholarships and MSP are proven and worthy programs and are not appropriate areas to be cut in order to fund a new and unproven program. Increasing the number of GRFs is a laudable goal in a better economic environment, but increasing the funding level by over 31 percent, particularly while essentially ignoring other graduate programs, is not fiscally responsible.

Department of Energy (DOE)

The Department of Energy (DOE) funds a wide range of research, development, demonstration and commercial application activities. The overall FY12 budget request for DOE is \$29.5 billion, which represents a \$3.1 billion or 11.8 percent increase of FY10 levels. Approximately one third of this amount is directed to research and development programs.

President Obama made clean energy technology development a centerpiece proposal of his State of the Union. The proposal includes an 80 percent clean energy standard (CES), a \$2 billion increase in "clean energy" research, and a Better Buildings Initiative. The Committee recognizes the importance of energy technology development to America's economic future, but has serious concerns with the overall spending and relative prioritization within the President's budget request.

Office of Science (SC)

The DOE Office of Science (SC) is the Federal government's primary supporter of long-term basic research in the physical sciences, as well as design, construction, and operation of major scientific user facilities. Office of Science activities are organized into the following six major programs: Basic Energy Sciences (BES), Advanced Scientific Computing Research (ASCR), Biological and Environmental Research (BER), Fusion Energy Sciences (FES), High Energy Physics (HEP), and Nuclear Physics (NP). The FY12 budget request for SC is \$5.4 billion, a 9.1 percent increase over FY10 levels.

The Committee recognizes the unique role of the Office of Science in supporting world-class scientific research and facilities and notes its continued strong support for SC activities as a key

driver of innovation and long-term economic growth. We also recognize SC's strong record in managing construction and operation of major scientific facilities that are delivering cutting-edge research breakthroughs in areas such as materials science and chemistry. Accordingly, we believe the Office of Science should be the top funding priority among DOE R&D programs. However, in light of budget circumstances, we intend to continue to work to identify areas within the SC budget warranting consideration for cuts. Of particular interest in this regard are SC Biological and Environmental Research activities, which fund significant research in areas ancillary to DOE's primary mission and/or potentially duplicative of research funded elsewhere in the government (such as climate change). Specifically, the Committee is concerned that the Atmospheric System Research and the Climate and Earth Systems Modeling programs are duplicative of research programs at the National Oceanic and Atmospheric Administration and the National Science Foundation. Additionally, the Fusion Energy Sciences program is an area of concern due to high-risk program management and international funding and cooperation challenges associated with the ITER project, and the value of SC spending on science education and workforce development also warrants further review.

Advanced Research Projects Agency – Energy (ARPA-E)

Advanced Research Projects Agency – Energy (ARPA-E) was created in 2007 with a charge to fund high-risk, high-reward research that “industry itself is not likely to undertake.” The Administration requests \$650 million for ARPA-E in FY12. Of this amount, \$550 million would be provided through discretionary funding. ARPA-E would also administer an additional \$100 million “Wireless Innovation Fund” aimed at developing wireless communications technologies and paid for through a proposed transfer of wireless spectrum auction revenues. Initially provided with \$400 million in the 2009 Recovery Act, ARPA-E did not receive a direct appropriation in FY10, though it was the beneficiary of a \$15 million transfer from the Office of Science.

The Committee remains concerned with ARPA-E. In 2007, many members opposed the creation of ARPA-E because they feared the program would emphasize late-stage technology development more appropriately performed by the private sector, and that it would be funded at the expense of priority basic research programs within the Office of Science.

These concerns appear to be validated by ARPA-E's initial activities, which suggest several instances of awards being made for activities already being pursued by the private sector. While the Committee remains open to identifying an acceptable manner in which to support truly high-risk and unsupported transformational research activities such as those described in the original ARPA-E vision, we do not believe the program should receive funding above existing levels necessary to oversee ongoing projects until an evaluation of the projects being funded takes place.

Nuclear Energy (NE)

The Administration request for Office of Nuclear Energy (NE) R&D programs is \$447.4 million, a 8.1 percent decrease (\$39.6 million) from the FY10 enacted level and 10 percent decrease from

the FY11 President's budget request. Approximately 74 percent of that request is dedicated to the Fuel Cycle R&D and Reactor Concepts RD&D programs.

The Committee strongly supports advancement of nuclear energy and associated research in NE. This support does not preclude Committee concern for misdirected and lower priority R&D within NE. For example, NE should focus on technology development for reactors with realistic potential for deployment, rather than continuing university research on well-studied technologies unlikely to move beyond the academic realm.

The Committee is encouraged by the proposal for two new programs, the Nuclear Energy Enabling Technologies (NEET) program and the Light Water Reactor (LWR) Small Modular Reactor (SMR) Licensing Technical Support program. The NEET program may provide an avenue for reactor development with crosscutting technologies which are not easily categorized specifically as fuel cycle or reactor concepts technology.

SMRs are well-researched and near demonstration. SMRs hold promise; however, still lack approval and licensing from the Nuclear Regulatory Commission (NRC). The proposed LWR SMR program intends to overcome the existing regulatory challenges. DOE must work closely with NRC to complete the SMR licensing process, at which point the LWR SMR Licensing Technical Support program should be terminated.

Energy Efficiency and Renewable Energy (EERE)

The Office of Energy Efficiency and Renewable Energy (EERE) funds a wide array of energy efficiency and renewable energy technologies. The Administration's budget request of \$3.2 billion for EERE represents a 44.4 percent (\$958 million) increase from the FY10 enacted level and a 36 percent increase (\$845 million) over the President's FY11 budget request. This reflects President Obama's call in his State of the Union speech for increased spending on clean energy technologies. Most EERE programs receive significant funding increases relative to the FY10 enacted level. Of note, Industrial Technologies receives a \$225 million increase (239 percent), which includes the creation of an Energy Innovation Hub on critical materials. Geothermal Technology would see an increase of \$58 million (125 percent) to expand the enhanced geothermal subprogram and Solar Energy would receive an additional \$213 million (87.8 percent) to fund the "Sunshot" and "dollar-a-watt" initiatives.

The Committee objects to the requested \$958 million (44 percent) increase in EERE's budget. This concern is based on (1) EERE's focus on incremental, low-impact technological advances through technology development, demonstration, commercialization, and deployment activities; and (2) its significant budget increases, which include 32 percent growth since FY 2008 and 93 percent growth since FY 2006. Additionally, EERE has spent only 31 percent of its appropriated \$16.5 billion in Stimulus funding. Outside of specific programmatic concerns, the ability of the office to responsibly manage and effectively oversee such massive budgetary increases is questionable.

Additionally, we believe many activities conducted by EERE are unnecessary and represent an inappropriate government involvement in the marketplace, resulting in the government "picking

winner and losers" among competing companies and technologies. EERE's budget increase includes a number of programs explicitly designed to assist with technology-specific demonstration, deployment and commercialization activities. Fundamentally, the act of providing individual firms with government money for the purpose of commercializing profitable technology is an inappropriate intervention in the market that may crowd out or discourage a greater amount of private investment.

We also generally question the appropriateness and value of several other newly proposed and expanded activities within EERE. The Vehicle Technologies Program (VTP) requests a \$204 million increase in vehicle technology deployment to disburse grants to cities for upgrade infrastructure to accommodate electric vehicles. Also, VTP plans to raise public awareness of vehicle technologies with "high visibility demonstration projects at national parks." The Building Technologies Program (BTP) requests a \$186 million increase from FY10 levels to support a "Race to the Green" competitive grant program. The grant program would implement policies such as adopting more stringent building codes, benchmarking and disclosing building energy use, and establishing public energy-savings targets. The Race to the Green program is a component of the Administration's Better Buildings Initiative. The Committee questions the relative value of a significant increase in Federal government spending for the purpose of providing grants to select localities.

EERE conducts a multitude of "outreach and education" programs encompassing projects from developing K-12 curriculums to providing energy resource assessments for governments scattered throughout Latin American and the Caribbean. These projects call into question the merit of existing spending and demand a methodical reevaluation of budget priorities before an increase of any size should even be considered.

These areas of concern are not exhaustive but rather represent examples of areas the Committee intends to further scrutinize. Rigorous examination and Committee oversight of EERE is necessary and the Committee believes EERE warrants significant and well-justified cuts to meet necessary spending reductions.

Electricity Delivery and Energy Reliability (OE)

The Office of Electricity Delivery and Energy Reliability (OE) oversees the modernization of the electric grid, the reliability of energy infrastructure, and conducts research and development for energy delivery-related technologies. Research and Development within OE would be funded at \$193 million in the President's FY12 budget request. This would reflect an increase of \$71.4 million (58.8 percent) from enacted FY10 levels and a \$48.5 million increase (33.6 percent) from the President's FY11 budget request. Additionally, the President requests \$20 million for the creation of a Smart Grid Technology and Systems Hub to be administered by OE.

This Committee asserts OE's FY12 budget request is misguided given current budgetary restraints. OE seeks an increase of \$43.4 million for the Energy Storage program; however, we are concerned about potential overlap with similar programs in the Office of Science, EERE's Vehicle Technologies Program, and ARPA-E's "GRIDS" program.

The Committee supports targeted OE R&D in Cyber Security for Energy Delivery Systems, which provide basic value and is a wise and necessary investment for the Federal government. In spite of the value provided by a rigorous cyber security program, the budget request reduces cyber security funding by \$9 million.

Fossil Energy (FE)

The DOE Office of Fossil Energy (FE) supports research and development focused on coal (including “clean coal” technologies), gas, petroleum, and also supports the Federal Government’s Strategic Petroleum Reserve. The President’s total budget request for the Office of Fossil Energy (FE) is \$520 million. FE’s research and development budget is reduced to \$453 million, a decrease of \$207 million, or 31 percent, from FY10 enacted levels. This correlates to a 23 percent decrease (\$134 million) from the President’s FY11 budget request.

The FY12 budget request proposes to terminate the Natural Gas Technologies and Unconventional Fossil Energy Technologies programs. Coal R&D is funded at \$291 million, the bulk of which is focused on advancing carbon capture and sequestration (CCS) efforts. The Hydrogen from Coal, Coal to Coal Biomass to Liquids, and Solid Oxide Fuel Cells subprograms would all be eliminated.

The Committee continues to be supportive of an “all-of-the-above” approach to addressing energy supply and demand issues, and recognizes the potential of renewable energy and energy efficiency technologies to contribute to this effort. We are concerned about the budget’s hostile approach to supply side factors associated with energy independence – primarily, expanding traditional sources of domestic energy – is disturbing. For example, we are deeply disappointed that the President’s budget summary proposes to eliminate the Ultra-Deepwater and Unconventional Natural Gas and Other Petroleum Research Program established in Section 999 of the Energy Policy Act of 2005 (P.L. 109-58). Section 999H(a) sets the funding for this program at a level of \$50-million-per-year provided from Federal lease royalties, rents, and bonuses paid by oil and gas companies – not taxpayers. It should be clear that the overall program was initiated and carried out to reach energy known to exist in the areas targeted – energy that was impossible to produce without new technology – and that the required technology would be eventually be paid for from the energy captured. Further, the Section 999 program is the only R&D program in the Federal government capable of addressing drilling safety and accident prevention-related technology needs in a timely and effective manner.

The Committee believes the United States must develop domestic energy resources to improve America’s energy security. This entails fossil fuel development, which are the backbone of energy usage today and, according to the Energy Information Administration, for the foreseeable future. Accordingly, the Administration’s proposal to eliminate a number of traditional Fossil Energy R&D programs, while placing nearly exclusive emphasis on carbon capture and sequestration (CCS) technology, is misguided. The Committee recommends restoring DOE’s Fossil Energy program to its prior focus on fundamental R&D to advance oil and gas exploration and production technologies and enable near-term environmental improvements, such as increasing power plant efficiency and research on non-greenhouse gas related pollution abatement technology.

Loan Guarantee Program Office (LPO)

The President's FY12 budget request for DOE's Loan Guarantee Program Office (LPO) is \$200 million. This funding would be used as a credit subsidy for loans authorized under Section 1703 of the Energy Policy Act of 2005. The LPO did not receive an appropriation for credit subsidies in FY10. The credit subsidy funding would support an estimated \$1 to \$2 billion in loan guarantees to support energy efficiency and renewable energy activities.

The Committee does not support the budget request for \$200 million to cover credit subsidies for renewable energy loan guarantees. The loan guarantee program offers businesses the ability to secure below market financing rates. Private financial institutions have a record of supporting economically feasible and valuable projects. Highly-developed financial markets have the necessary tools to evaluate the relative worth of an energy project and provide the appropriate level of financing. We should avoid picking "winning and losing" projects through this program and return to a privately funded model of energy innovation.

In addition to the Title 17 loan guarantees, the President is requesting \$105 million to for the creation of a "Better Building Pilot Loan Guarantee Initiative for Universities, Schools, and Hospitals." This program would fund loan guarantees help retrofit commercial buildings and would be available to subsidize up to \$2 billion in total loan principal.

The Committee believes the creation of the Better Buildings Initiative is not warranted. The Administration provides nominal details for the initiative, such as what entities would qualify, the criteria by which terms and conditions would be decided, and why such a program is needed. The associated costs, outside of the \$100 million for credit subsidies, reveal the potentially wasteful nature of the program. For example, the detailed justification requests \$1.65 million for salaries and benefits of ten full-time equivalent employees, or an *average* package of \$165,000 per employee.

Energy Innovation Hubs

The FY12 budget request proposes funding of \$146 million to support six Energy Innovation Hubs, which are supported through the SC, EERE, and NE accounts. This would support the three existing Hubs as well as the creation of three new Hubs, which the President highlighted in his recent State of the Union address. According to the Administration, Hubs are intended to "advance highly promising areas of energy science and engineering from the early stage of research to the point where the technology can be handed off to the private sector."

The Administration's proposal to double the number of Hubs is not warranted under current fiscal strains. The newly proposed hubs all replicate ongoing research in multiple DOE programs. For example, the request includes \$34 million for a Batteries and Energy Storage Hub, in addition to \$136 million (\$60 million increase) for battery and energy storage R&D in EERE's Vehicle Technologies Program, thermal energy storage research conducted by the Solar Technologies Program, and two BES subprograms.

Rather than merge and consolidate programs to improve program direction and research efficiency, the request advances the complete opposite approach with new research programs in associated across-the-board increases for all programs.

National Oceanic and Atmospheric Administration (NOAA)

Within the jurisdiction of the Committee, the National Oceanic and Atmospheric Administration (NOAA) is one of the smaller operational and research agencies. NOAA's mission of science, service, and stewardship is manifested through improvement of the understanding of oceans and atmosphere and how their interactions affect human life, property and ecosystem health. NOAA provides critical weather and climate data necessary to protect lives and to enhance commerce through the National Weather Service (NWS) and the National Environmental Satellite Service (NESS)¹. NOAA is responsible for mapping and charting coastal areas and other navigation support services through the National Ocean Service (NOS). NOAA also manages fisheries and conducts research on marine ecosystems and marine mammals through the National Marine Fisheries Service (NMFS). Finally, NOAA conducts world-leading atmospheric and oceanic research through its Office of Oceanic and Atmospheric Research (OAR).

NOAA's FY12 budget request is 5.5 billion, an increase of \$749 million or 15.8 percent above the FY10 enacted level. As part of the request, the Administration has proposed the largest reorganization of NOAA since its inception in 1970.

Climate Service (CS)

The budget request includes \$346.2 million for a new line office, the Climate Service (CS), which would include assets consolidated from OAR, NWS, and NESS. The Committee does not approve this reorganization or the creation of this Climate Service. The Committee has serious concerns regarding the implications of transitioning climate-related research into an operational office. Such a movement makes research funding vulnerable to cuts during tight budgetary times in order to ensure the continued operational functionality of the service. The Committee is concerned that existing science-driven research activities would be supplanted by service-driven and mission-directed research, compromising the integrity and objectivity of NOAA research. The Committee remains open to identifying organizational changes to improve information flow between NOAA's research, service, and operational activities, but such an effort would require close review and consideration through hearings and possibly legislative action. The Committee expects that NOAA will continue operating in its current organizational structure unless explicitly authorized otherwise by Congress.

National Environmental Satellite Service (NESS)

The FY12 budget request for the NESS is \$2 billion, a \$698.2 million increase over FY2010 enacted levels. This 58.2 percent increase is by far the largest increase in NOAA's total budget

¹ This line office was previously termed the National Environmental Satellite, Data, and Information Service (NESDIS). However, with the movement of the data centers into the new Climate Service, the name was changed to reflect the office's narrower focus.

request. The bulk of the increase is for the Joint Polar Satellite System (JPSS)². JPSS will provide polar-orbiting satellites scheduled to launch starting in 2016, which will replace currently operational satellites and provide key data used in weather forecasting and environmental observations. The Committee strongly supports this request and believes it should receive funding priority, even if it must come at the expense of other programs at NOAA. Due to the previous delays of its predecessor program, JPSS is well behind schedule. Further significant budgetary shortfalls are very likely to result in a satellite data continuity gap, degrading the efficacy of timely weather forecasts (particularly with respect to development storms and severe weather), and potentially harming NOAA's ability to fulfill its mission to protect life and property. However, the Committee is concerned that, since the recent reorganization of this program, JPSS has not undergone a budget re-baseline process as required under P.L. 110-161 and P.L. 109-155. The Committee believes that a baselining process should be completed before funding for FY12 is appropriated, and will continue to work to identify cost-savings within the JPSS program that do not jeopardize operational needs.

The Committee has reservations about NOAA's request of \$47 million for the refurbishment of the Deep Space Climate Observatory (DSCOVR) satellite. Although supportive of funding a replacement satellite for the existing Advanced Composition Explorer (ACE) satellite that provides space weather information, NOAA's choice of replacement warrants further scrutiny. The DSCOVR satellite has been in storage for a decade. The Committee realizes that NASA has already spent money refurbishing DSCOVR for a research mission, we are concerned about using such an old satellite for a replacement of ACE, a vital resource for forecasting space weather events that have direct impacts on global positioning satellites, communication networks and the electric grid. Furthermore, we are concerned about combining an operational mission from NOAA with a research mission from NASA. Typically, specifications for research satellites differ from specifications and standards for operational satellites. The Committee will closely monitor the development of the ACE replacement and will also ensure that the Office of Science and Technology Policy follows through on the requirement laid out in P.L. 111-267 to submit a report to Congress detailing options for an ACE replacement.

Office of Oceanic and Atmospheric Research (OAR)

The Committee has grave concerns regarding the impact of the proposed Climate Service on OAR. More than half the resources of OAR will move into the new line office, decimating the resources of this research agency and harming the synergistic and strategic approach of the entire NOAA science enterprise. This transfer of assets is inconsistent with what was suggested and proposed by NOAA's Science Advisory Board only six years ago. The Committee will be reviewing the effects of such a transfer, and in the meantime, has insisted to the Administrator that the existing structure is maintained.

² This program was previously the National Polar-orbiting Operational Environmental Satellite System (NPOESS), a tri-agency program with the National Aeronautical and Space Administration (NASA) and the Department of Defense (DoD). As part of the FY2011 budget request, the Administration split NPOESS into two programs. NOAA and NASA have responsibility for the JPSS program to cover the afternoon satellite orbit. DoD will have a separate polar weather satellite program for the early morning orbit.

The Committee does not agree with the proposed budget reduction of the Unmanned Aircraft Systems (UAS) program. After several successful test runs, this program is prime for additional research to truly make it operational. The UAS technology appears likely to be capable of delivering improved weather and environmental data for reduced cost, alleviating operational budgets for the National Weather Service and other NOAA activities. The Committee recommends that this budget stay at the FY2010 enacted levels of \$6 million. We believe that such an investment will result in future cost savings.

The Committee supports the \$10 million OAR request for R&D on Multi-function Phased Array Radar (MPAR). This next generation radar has the potential to reduce the U.S. system by 180 radars, resulting in \$1.9 billion in acquisition savings and \$3 billion in operational cost reductions over 30 years. MPAR would be four to five times faster than today's system, greatly enhancing public safety by allowing warnings of over one-hour versus the current 15 minute lead time.

National Weather Service (NWS)

The Committee is generally supportive of the overall National Weather Service (NWS) FY12 budget request of \$988.0 million which is a 1.2 percent decrease from the FY10 enacted level. However, there are some concerns with the prioritization of the request. During some of the major storms in 2010, the NWS website went down. This is a vital resource used by emergency responders, State and local decision makers and the general public in order to deal with extreme weather events. The Committee is concerned about the requested decrease of \$3.2 million for the telecommunications program at NWS; specifically, how it will affect the ability of NWS to ensure that critical information flow to the public is not hampered. With increasing concerns about the quality of the surface temperature data used for climate monitoring and prediction, the Committee is hesitant about the zeroing out of funding for the National Mesonet Network. The Mesonet Network was established in response to the National Academies of Science expressing concern about the lack of integration of distributed monitoring and observational networks. While we have confidence that NWS will be able to achieve quality forecasts using existing networks, we are concerned with the quality of the data generated by outside entities and the ability of NWS to properly integrate it into its own databases. Therefore, the Committee would support a reduction but not elimination of funding for the Mesonet Network, provided this would not increase the total proposed budgetary request. Finally, the Committee supports the NWS request of an increase of \$11 million for weather and climate supercomputing. However, given the amount of funding NOAA has received for climate computing capability in the last few years, including stimulus funding, the Committee would recommend that this increase be granted only in accordance with an equal or larger decrease in the climate-related computing budget.

National Institute of Standards and Technology (NIST)

The National Institute of Standards and Technology (NIST) is a non-regulatory laboratory of the federal government tasked with innovation and industrial competitiveness by advancing measurement science, standards and technology in ways that enhance economic security and improve our quality of life.

In FY12, the Administration has requested a funding level of \$1 billion or a 16.9 percent increase from FY10 enacted funding for NIST. The budget request would provide \$678.9 million for NIST's Scientific and Technical Research and Services (STRS); \$84.6 million for Construction of Research Facilities (CRF); \$142.6 million for the Manufacturing Extension Partnership (MEP) program; and \$75.0 million for the Technology Innovation Program (TIP).

Laboratories and Construction

The Committee recognizes that NIST's laboratories and internal maintenance and construction of those laboratories closely support our nation's innovation by working closely with industry to develop consensus-based voluntary standards. As a trusted arbiter regarded for its high-quality work, maintaining strong support for the laboratories is vital to our economic security. Nevertheless, the \$164 million or 32 percent increase over FY10 requested for the laboratories needs to be scrutinized to ensure that these additional funds are necessary.

While state-of-the-art facilities are essential to the capabilities of NIST's intramural laboratories, the Committee supports the Administration for requesting no funds for the extramural construction grant program. The grants – awarded to external entities - do not directly support NIST's mission and were not an authorized activity. Members believe NIST should remain focused on its primary mission and concur with the Administration that this program should not be funded in FY12.

Industrial Technology Services

The Committee is concerned about the proposed expansion of the industrial technology services programs requested by the Administration. In particular, the Technology Innovation Program (TIP) is requested to receive a \$5 million increase. Though the three-year old program has had limited time to prove itself, the Committee wants to ensure that this program is successfully supporting the development of technologies to meet critical national needs. The Committee also notes that this program was not reauthorized in the 2010 America COMPETES Act.

The Committee is pleased with the Administration's reduced request for the Baldrige Performance Excellence Program (BPEP). While the program plays an important role in recognizing and perpetuating high quality practices across industry, it is an appropriate time in the program's maturity to explore other sustainable mechanisms of running the program.

The Committee questions the creation of the new Advanced Manufacturing Technology Consortia (AMTech) Program, with a \$12.3 million request in FY12. The program would fund facilities, equipment, and research at universities and government laboratories to address long-term research needs of the manufacturing industry. A thorough review of the plans for this program is necessary.

Public Safety Innovation Fund (WIN)

The FY12 budget request includes a plan to invest broadband spectrum receipts in a variety of areas, including \$100 million annually provided to NIST for 2012-2016 for research supporting the development and promotion of wireless technologies to advance public safety, Smart Grid, and other broadband capabilities. The Committee commends the Administration for recognizing NIST's history of working closely with industry on interoperability standards.

Department of Homeland Security (DHS)

The Department of Homeland Security Science and Technology Directorate (DHS S&T) funds research, development, testing and evaluation to improve homeland security. The Domestic Nuclear Detection Office (DNDO), whose transformative research program is transferred to DHS S&T in the FY12 request, is dedicated to both the development and enhancement of the global nuclear detection architecture, the coordination of nuclear detection research and development, and the establishment of procedures and training for end users of nuclear detection equipment.

The FY12 budget request for DHS S&T is \$1.2 billion, an increase of 16.9 percent, or \$170 million over the FY10 enacted level. Most of this increase reflects the transfer of R&D programs from the DNDO to DHS S&T. Within DNDO, the FY12 budget drops by \$51.3 million or 13.4 percent.

The Committee is concerned that if the DNDO transfer and proposed funding for the construction of the National Bio and Agro-Defense Facility is removed, the DHS S&T budget request represents a net 11 percent decrease from FY10 funding levels. The Committee recognizes that robust research and development is necessary to support DHS's mission, and wants to ensure that the S&T Directorate has the resources it needs to keep our nation safe and borders secure.

Finally, the Committee recognizes the value of both Assistance to Firefighter Grants (AFG) and Staffing for Adequate Fire and Emergency Response (SAFER) grants to our Nation's fire departments. However, the Committee remains concerned that SAFER grant program continues to expand while the FY12 request for AFG reflects a 36 percent decrease below FY10 funding.

Environmental Protection Agency (EPA)

The Science and Technology (S&T) account in the Environmental Protection Agency (EPA) covers research and development activities in several line offices. The activities at the Office of Research and Development (ORD) represent about 70 percent of the S&T budget. The FY12 budget request for S&T is \$825.6 million, a 2.6 percent reduction from FY10 enacted levels. The budget request for ORD is \$584.1 million, a 2.1 percent decrease from FY10 levels.

Due to EPA's disturbing pattern of regulating based on insufficient or faulty scientific evidence, the Committee feels that it is unnecessary to continue to fund EPA's research at existing levels until reforms are undertaken. For example, the Air, Climate and Energy (ACE) research programs at ORD include activities to develop tools to assess behavioral responses to mitigation or adaptation policies. This type of research does not further EPA's mission of protecting human health and the environment. Instead, these activities seem to be more driven by policy advocacy, which is not an appropriate use of research dollars.

The Committee does not support the 56 percent increase in STAR fellowships. Although fellowships are important for the training and education of the next generation of scientists, the Committee feels that the budgetary constraints we are currently operating under do not afford this type of expenditure.

The Committee has reservations about \$0.5 million requested decrease in the Human Health Risk Assessment research program. This program supports the Integrated Risk Information System (IRIS), a risk-based database used by industry and government regulators alike. IRIS has been notoriously late on assessments, and with the decreased transparency that is now embedded into the new assessment process, the Committee has grave concerns about the quality of the assessments produced. Furthermore, the Committee has serious reservations about how this system is being used for ulterior purposes. EPA decision makers for IRIS are focusing on chemicals that a very small percentage of the overall population is exposed to. Given the backlog of chemicals IRIS is assessing, the Committee feels it would make more sense to assess chemicals that potentially affect a much greater percentage of the population. Finally, the Committee does not support the use of poor quality data, reports or information in these IRIS assessments. It has come to our attention that such data is used to make determinations that will have substantial economic and policy implications.

Department of Transportation

Federal Aviation Administration (FAA) – Research, Development and Technology

The FY12 budget request provides \$394.4 million for FAA research and development activities, plus an additional \$28.4 million for related facilities, adding to a total request of \$422.8 million, a \$22.2 million increase (5.5%) above the FY11 request. Agency R&D is spread among four accounts:

1. Office of Commercial Space Transportation (OCST) – Safety. The FY12 budget request is \$566,000 for OCST – Safety, a \$401,000 or 243 percent increase over FY11. Among other activities, the additional funds would be used for research and development of the technical expertise needed to certify human space flight launch systems and capsules now under development that would be used to carry non-government passengers (astronauts) to orbit.
2. The Research, Engineering and Development account (Aviation Trust Fund), with a FY12 request of \$190 million, is \$500,000 less than the amount requested in FY11. RE&D conducts research to support a safe, efficient and environmentally acceptable

aviation system in five key areas: air traffic services, airport technology, aircraft safety, human factors and the environment.

3. A portion of the Facilities and Equipment account (Aviation Trust Fund) dedicated to engineering, development, test and evaluation, with an FY12 request of \$177.5 million, a \$22.3 million or 14 percent increase over the FY11 request.
4. A portion of the Airport Improvement Program account (Aviation Trust Fund) with an FY12 request of \$44.3 million, an increase of \$2.1 million over five percent over FY11.

At a programmatic level we support the FAA's budget request for development and implementation of NextGen, to modernize our nation's air traffic control system. NextGen technologies will ensure that our national airspace system can readily accommodate future growth while maintaining the highest levels of safety. Whether speaking about NextGen R&D, or NextGen generally, it is essential these efforts be supported.

Office of Commercial Space Transportation (OCST)

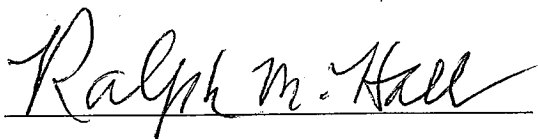
The FY12 budget request for OCST (operations) is \$26.6 million, an increase of \$10.9 million or 70 percent over the FY11 request. OCST is responsible for licensing and regulating commercial space launches and reentries to ensure compliance with standards designed to protect public safety. For FY12, OCST proposes to hire 32 additional FTE staff to develop and implement additional safety processes and requirements specifically for commercial human spaceflight and space traffic management. Our committee intends to hold hearings prior to reauthorizing OCST later this year.

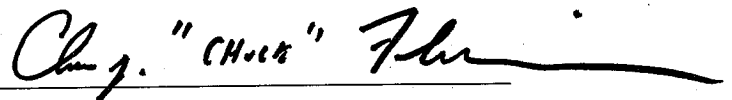
Research and Innovative Technology Administration (RITA)

The FY12 Administration research request for RITA is \$17.6 million, or \$4.6 million above the FY10 enacted. RITA is tasked with coordinating and reviewing all of DOT's research and development programs, representing more than \$1 billion across the Department.

The proposed funding levels for research and development for the Federal Highway Administration is \$661 million and for the Federal Transit Administration is \$30 million. Both of these accounts support portions of the research and development conducted by University Transportation Centers across the country.

The Committee is concerned about long-term, rigorous transportation research and development remaining a high priority, and believes that we must provide realistic and sustainable funding for these programs in the future. Furthermore, the Committee is concerned that the Administration's goals for some transportation research programs, such as Livable Communities or green construction, may stray from the fundamental transportation needs of most taxpayers including road safety and congestion mitigation.





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3. Representative Steven M. Palazzo
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19. Representative Dan Benishek
20. Representative Chip Cravaack
21. Representative Sandy Adams

ADDITIONAL VIEWS
OF HON. DANA ROHRBACHER
COMMITTEE ON SCIENCE, SPACE AND TECHNOLOGY
FISCAL YEAR 2012 BUDGET REQUEST

As we get deeper and deeper into ever more deficit spending, with crushing debt threatening our nation's prosperity, it is more critical than ever that we pay extreme attention to every federal expense. American investments into science and technology have always provided the basis for new industries, which have, in turn, increased the private sector workforce and improved the lives of millions of Americans. These investments have enabled our economy to consistently be the strongest in the world.

We must make every dollar count because we are borrowing 40 cents of every dollar the federal government spends. We must show restraint. We must not duplicate efforts across agencies and departments. And we must not continue to spend by mortgaging the futures of our children by borrowing from our friends and from our enemies. Although I agree with much of the Views and Estimates, there are some specific areas on which I wish to state a different view.

U.S. Global Change Research Program The U.S. Global Change Research Program (USGCRP) is the government-wide program created by Congress in 1990 "to improve understanding of uncertainties in climate science, expand global observing systems, develop science-based resources to support policymaking and resource management, and communicate findings broadly among scientific and stakeholder communities." For FY 2011 the Administration requested a 20.7% increase over the FY 2010 enacted funding. For FY 2012 the Administration has asked for even more. These funds are requested directly in the budgets of NASA, NSF, NOAA, NIST, DOE, and other departments.

I have been blunt before, and I still strongly believe that the entire budget for this program should be zeroed out. Federal global warming research is not reducing uncertainties in climate science. The research is not changing minds. If we spend \$2.6 billion in FY 2012, 40% of which we borrow from overseas, it will change zero minds about global warming. Every dollar spent on this is a dollar wasted. The path we are on is irrational and reckless.

National Aeronautics and Space Administration The budget request for Fiscal Year 2012 for the National Aeronautics and Space Administration (NASA) funds every component authorized under the NASA Authorization Act of 2010 (P.L. 111-267) within the same funding level as appropriated for FY 2010 of \$18.7 billion, which is \$730 million less than authorized. The budget request also includes \$548 million for the Space Shuttle Pension Liability commitment, which was not included in that authorization.

NASA is to be commended for proposing to fund every component in the authorization, while absorbing this \$1.3 billion reduction in expected funding flexibility.

It is of note that, whatever our space policy will be from this point forward, we will not be able to achieve continued success solely on the backs of our taxpayers. For far too long our space funding has not matched our space mission, creating a dangerous, frustrating situation with no clear path to success. With the 2010 NASA Authorization Act, we have identified the path forward: America's space goals can only be achieved by partnering with other nations and by bringing in funds from the private sector, creating sustainable launchers and vehicles that can serve both public and private markets. This budget request reflects that reality.

This FY 2012 budget request identifies the development of commercial crew services as one of the key short-term components that will help us make use of the \$100 billion spent to date on constructing the International Space Station. \$850 million to help incentivize the private sector to develop and demonstrate critical technologies leading to multiple, independent, sustainable systems that can bring people safely to orbit and return them to Earth is an investment worth making. The increase of \$350 million in this program above authorized levels is small relative to the potential gain for NASA, America, and humanity. The companies involved in the commercial crew services program include both new startups and long-established companies who have been NASA's partners on every human spaceflight mission.

The FY 2012 budget request also seeks funding of \$2.8 billion for the SLS and MPCV programs. These vehicles are being developed primarily for exploration beyond Earth orbit, expected to start in 2020, and can also serve as a backup system for Earth-to-orbit transportation in the unlikely event that none of the other systems in development are successful. It would obviously be ill-advised to fund a back-up system at 330% of the cost of the primary system if there were no additional purpose for it. The funding level for these programs is \$1.2 billion less than authorized for FY 2012, due mostly to the overall reduction in the NASA request, the required pension liability commitment, and the ongoing process of architecture selection. This reduction is one of those difficult choices that need to be made in our current fiscal environment, and I think it is the correct one.



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UNITED STATES
HOUSE OF REPRESENTATIVES

Additional Views and Estimates

Congressman Roscoe G. Bartlett

Committee on Science, Space and Technology

Fiscal Year 2012

Department of Energy (DOE)

The Committee objects to significant increases in the requested budgets for research, development and demonstration projects by DOE. These increases must be considered not only in the context of the past several fiscal years and our fiscal challenges which I agree must be addressed, but in a broader historical context. As I indicated in charts I shared during my question and answer period with Secretary Chu, the threat to the economic and national security of the United States posed by global peak oil argues for significantly greater, not less funding for research, development and demonstration projects to develop alternative liquid fuels for our most dependent and vulnerable transportation sector.

The United States is now 40 years past our peak crude oil production in 1970-71. The U.S. is producing 5 mpd, half of what we produced in 1970-71 despite production from Alaska and the Gulf of Mexico and new technologies, such as seismic 3-D and horizontal drilling, recently applied to the Bakken shale formation that underlies Montana, North Dakota and Wyoming.

The International Energy Agency (IEA) lowered its estimate of potential global crude oil output in 2035 by 10 mpd between its 2009 and 2010 World Energy Outlook reports from @100 mbd to 90 mbd. In its World Energy Outlook 2010, the IEA asserted that global peak oil has already occurred. Specifically, the IEA said, "Crude oil output reaches an undulating plateau of around 68 - 69 mb/d by 2020, but never regains its all - time peak of 70 mb/d reached in 2006." Furthermore, the IEA projected growing influence in the global oil market by OPEC oil producing countries. "The increasing share of OPEC contributes to the growing dominance of national oil companies: as a group, they account for all of the increase in global production between 2009 and 2035." These countries are governed by predominantly authoritarian regimes, many hostile to the United States, such as Iran and Venezuela. Popular protests that began in Tunisia and Egypt in the Middle East have spread to Bahrain and Saudi Arabia, the key swing and largest producer, contributing to oil price spikes over \$100/barrel in the last three months.

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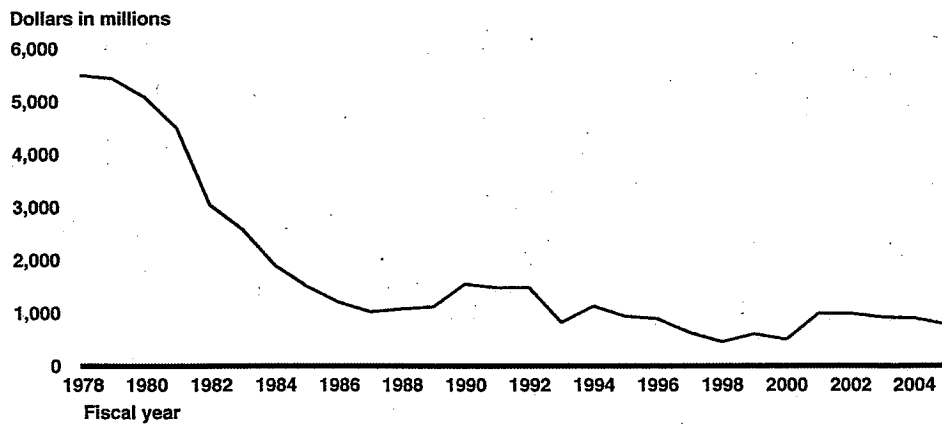
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The vulnerability of the U.S. is increasing because we have been producing, that is depleting, our small and declining 2-3 percent share of world oil reserves at a rate four times faster than OPEC. U.S. oil geologist and executive, Ray Leonard, President and CEO, Hyperdynamics Corporation, at the Muehlberger Symposium in Austin, Texas August 2010 reported that, "Present yearly production consumes 1.5% of OPEC reserves, 3.5% of [the Former Soviet Union] FSU, and 7% of the rest of the world (ROW). Extending this trend into the future with current reserve base increases OPEC's reserve share to 80% by 2020. Meanwhile, the rest of the world's share reduces to less than 10% by 2015."

Despite repeated instances and increasing vulnerability of the United States to oil-fueled price spike economic disruptions, funding for research, development and demonstration on energy has declined dramatically. The General Accounting Office (GAO) analyzed the trends of U.S. federal government expenditures on research, development and demonstration projects by DOE in two relevant reports, "Advanced Energy Technologies: Budget Trends and Challenges for DOE's Energy R&D Program," (GAO-08-556) and "Department of Energy: Key Challenges Remain for Developing and Deploying Advanced Energy Technologies to Meet Future Needs" (GAO-07-106). GAO reported to Congress that "DOE's total budget authority for renewable, fossil, and nuclear energy R&D dropped by over 85 percent (in inflation-adjusted dollars) from 1978 to 2005—from about \$5.5 billion in fiscal year 1978 to \$793 million in fiscal year 2005. (Fig. 2)

Figure 2: DOE's Budget Authority for Renewable, Fossil, and Nuclear R&D, Fiscal Years 1978-2005



Source: GAO analysis of DOE data.

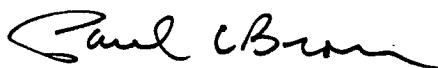
Committee on Science, Space and Technology
Fiscal Year 2012
Additional Views

The Majority Views and Estimates for the Committee on Science, Space and Technology incorporate many positions that I support regarding the future of the various agencies under the Committee's jurisdiction. However, I must emphasize the need to be vigilant in our oversight of these agencies and their budgets. In these difficult economic times and the record breaking deficits and debt levels, it is imperative that the Committee not let the taxpayer down. The federal government cannot be all things to all people; it cannot afford to do everything. We must continue to ask ourselves, "What is the appropriate role of the federal government in science, research and development?"

The American people sent a strong message to Congress last fall; we need to get our financial house in order. They expect us to make the tough financial decisions and make the federal government smaller and more efficient. I am very concerned that much of the massive increases in spending proposed by the Administration for Fiscal Year 2012, coupled with the previous years' increases in spending and massive outlays in 2009 with the American Recovery and Reinvestment Act are unsustainable and in many cases unwarranted. The Administration continues to fund agencies and programs that are often duplicative, wasteful and better done in the private sector.

With each program, the Committee must ask the tough questions. Is this program necessary? Can we afford this program? Are these programs constitutional? Is this program already being done? How do we measure success or failure of the program?

Additionally, I continue to be alarmed that the Administration's budget continues to make climate change a priority. As money is dispersed to this end, I believe we need to make sure that whatever conclusions that may be drawn are in fact based on sound science and that any policy initiatives should not be implemented without Congressional approval and oversight and with this Committee's active participation.



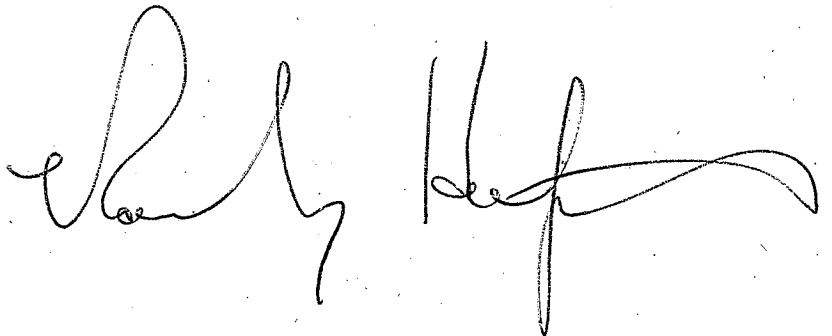
Paul C. Broun, M.D.
Member of Congress

**Rep. Hultgren - Additional Views and Estimates of President Obama's Budget Request for issues
within the Jurisdiction of the Committee on Science, Space and Technology.**

March 16, 2011

While I'm encouraged by the support for the Office of Science, I'm troubled by the Administration's priorities within the Office of Science. The 2012 budget request is essentially a freeze at FY2010 levels for High Energy Physics, while other programs within the Office of Science are slated for increases of 21 to 24 percent. The Administration must not lose sight of the importance of basic research in high energy physics and I strongly disagree with the funding disparity in the FY2012 budget.

Additionally, Fermi National Accelerator Laboratory in my district is the only single purpose high energy particle physics lab in the US, and I'm concerned by the lack of clear, long-term support for the Lab and its mission. This is a critical time for Fermilab as it transitions from the highly successful running of the Tevatron and transitions to new projects and programs at the Intensity Frontier, including the Long Baseline Neutrino Experiment (LBNE) at the Deep Underground Science and Engineering Laboratory (DUSEL). There needs to be greater stress on both keeping the National Science Foundation working as strong a partner in the operation of the DUSEL (which serves as a critical component of Fermi Lab's LBNE) and the future of the lab as a competitive global leader in basic research and high energy physics.

A handwritten signature in black ink, appearing to read "Randy Hultgren". The signature is written in a cursive style with a large initial "R" and a long horizontal stroke at the end.

**Minority Views of the Democratic Caucus of the
Committee on Science, Space, and Technology
On the FY2012 Budget Request**

The nation's research and development agencies have a long history of investing in research and education programs that return very significant economic payoffs to the American people. The President's FY 2012 budget request continues the commitment to investing in our future while at the same time acknowledging the difficult fiscal environment in which we find ourselves. While we can disagree with some of the specific choices and priorities contained in the Administration's FY 2012 budget request, we share the President's goals of maintaining a strong science and technology enterprise and ensuring that our young people are prepared for the technical careers of the future.

The choice before us as a nation is stark: we can focus on the need to create jobs now and in the coming years by making sure that we are taking the necessary steps to ensure that we remain economically strong and competitive in a challenging international marketplace, or we can engage in short-sighted cutting of our capabilities for innovation and education to meet arbitrary budgetary targets. If the past is any guide, it is clear that investments in science, technology and STEM education must be a cornerstone of any serious long-term strategy to keep America competitive.

The budget resolution that these Views and Estimates are intended to inform is being developed even while the *FY 2011* budget remains in play. The House consideration of the FY 2011 budget has been marked by severe cuts to important research and development (R&D) initiatives in order to meet arbitrary fiscal goals. The end result of those cuts, if enacted into law, would be thousands of layoffs and furloughs among the best and brightest of our scientists and engineers; curtailment of critical research activities to protect the public from environmental hazards; fewer innovative technologies to enable the industries of the future; and serious damage to our core scientific and technological capabilities.

The President's FY 2012 budget request, on the other hand, recognizes that even in these challenging economic times, we need not—and should not—sacrifice our future for the sake of crippling cuts to a small fraction of the total federal budget. With vision and perseverance, we can be both fiscally responsible *and* make the necessary investments to keep the American economy competitive in the coming decades while keeping our people and our environment healthy.

Thus, while there are findings in the Majority's Views and Estimates with which we can agree, it is clear that the overall thrust of those Views and Estimates is in the direction of advocating substantial cuts to important research and development programs and initiatives. While there are undoubtedly areas of savings that could be found by careful examination of programs and projects, the broad-brush notion that whole areas of science and technology are not needed to prepare for an uncertain future does not have a credible basis in either fact or analysis. Thus, vague and unsupported claims that agencies like the

Environmental Protection Agency are regulating “based on insufficient or faulty science”—and thus should have their funding cut—do little to advance the debate over appropriate R&D funding priorities nor do they provide thoughtful guidance to the Budget Committee as it attempts to construct an overall federal budget blueprint.

That is not to say that there is nothing of value that can be said about the choices before us as a nation. For example, one need only look at the cuts that were adopted in H.R. 1 to realize that the path advocated in that legislation and in the Majority’s Views and Estimates would lead thousands of the most promising scientists and engineers in the nation to lose their jobs and abandon their research. After years of bipartisan calls for young people to come into science and math and engineering, the outcome of enacting H.R. 1 or the policies in the Majority’s Views and Estimates would be the same as posting a big “Help Not Needed” sign on every National Laboratory and university throughout the country. That would be a tragedy—and one that the President’s FY 2012 budget request seeks to avoid.

Every family understands that there are consumption expenditures and investment expenditures. We sacrifice to make sure our children have shoes, medical care, and a good education. When money is tight, we cut back on restaurant dinners, new clothes for ourselves, and vacation trips--those things that might be nice to have, but are not necessary to keep a roof over our heads today or build a better life for our family tomorrow. Even when times are tough, however, we are willing to take out loans or take on a second job to help cover the costs of college. People understand that shortchanging our children’s education will leave them less prepared for what will come. In our private lives we understand that the investments we make today, even when times are hard, will pay dividends in the future. This same logic applies to meeting our public responsibilities.

In short, Democratic members of the Committee on Science, Space, and Technology believe that if we do not invest in education, in new ideas, and in new processes, we will deny our children the capacity to deal effectively with the crises that their generation will have to tackle. It is irresponsible not to invest in the future, whether you are talking about your own children or speaking of the legacy we as a society leave the generations that will succeed us.

The Democratic Members of the Committee thus endorse the President’s budget request for FY2012 in the area of research and development. While we might make slightly different recommendations across specific program areas, taken as a whole, the Administration has worked hard to find savings to balance their continuing commitment to investing in our nation’s future. We endorse the Administration’s approach of guarding from cuts those investments in innovation, education and infrastructure that contribute to the conditions that allow Americans to continue to do what we have done time and again since the founding of the Republic:

invest to keep America economically competitive and strong and to create good jobs now and in the future;

build opportunities for every citizen to unleash their potential to be creative, productive and actively contribute to this great democracy; and leave for our children a world that is better than the one we inherited.

We should add that these investments will build not just a better society, but also make this country a better place to do business and develop a workforce with the skills to excel, the ambition to create, and the means to succeed.

Programmatic Guidance

While programmatic guidance is of limited utility to the Budget Committee, what follows are specific observations, agency-by-agency, where the agreement or disagreement with the Majority Views and Estimates is significant enough to justify comment.

National Aeronautics and Space Administration (NASA)

While supportive of the President, Democratic members are disappointed with the NASA request, especially in light of the work that Congress undertook last year to forge a constructive path forward for the nation's space program. The compromise that was enacted into law is not reflected in the proposed NASA budget request. The request cuts NASA's overall budget plan and its human exploration budget even further than before, delays the development of the next generation vehicles, and eliminates any concrete destinations or milestones beyond the International Space Station that can inform decisions on needed investments in space technology. We agree with the Majority's view that NASA's FY 2012 request is not reflective of the priorities established in the NASA Authorization Act of 2010 as the Administration has placed a relative higher priority on commercial crew and underfunded development of the Space Launch Vehicle (SLS) and Multiple Purpose Crew Vehicle (MPCV).

Contrary to the Majority's position on Earth Science, Democratic members have been supportive of the higher funding accorded this area in last year's request. NASA has indicated that reduced out-year funding for Earth Sciences will necessitate delaying the start of two missions, CLARREO and DESDynI. While this is unfortunate, Democratic members acknowledge the budgetary challenges facing NASA's Science program. However, we are concerned that delays in initiating these missions could lead to higher development costs and also delay the collection of data. This data would provide significant utility in observing, understanding, and addressing key environmental challenges including complete El Nino/ La Nina cycles, reflected solar radiation and Earth thermal radiation, earthquakes, volcanic eruptions, landslides as well as new observational information for monitoring forests, agricultural resources, and mountain glaciers.

National Science Foundation (NSF)

Democratic Members strongly support fully funding NSF at the levels requested by the President. There is no record to support the Republican views that "... new and expanded Administration priorities continue to excessively divert precious research and

development funds from other worthy endeavors.” Innovation in science and the creation of cross-disciplinary science initiatives that tie basic research to technology innovation, at agencies that fund research and development both reflect and help drive creativity across the nation’s colleges and universities.

Department of Energy (DOE)

Democratic Members strongly reject the Republican preferences for cuts to programs at the DOE. The cuts outlined in the FY2011 Continuing Resolution would lead to job losses in the thousands spread across the National Labs in California, New Mexico, Washington, Colorado, Illinois, Tennessee, New York, and Virginia, and many thousands more at universities and companies all across the country. Not only would some of the country’s best and brightest find their careers interrupted or ended, but the Nation would also lose the fruits of their hard work and creativity. DOE programs and the National Labs fill a void in the U.S. innovation pipeline that industry and universities cannot or will not do alone, tackling some of our most important national challenges at the cutting edge of questions about material sciences, energy sciences, emerging sources of energy, and conservation.

Democratic Members believe that we must take a comprehensive approach to assure a safer, more sustainable energy future for our children, and this includes supporting activities from basic to applied research, and beyond. Assuming that the current level of private investment in energy technologies is sufficient, that companies will do all of the necessary cutting-edge research on their own, or that the marketplace will naturally pick cleaner technologies, grossly oversimplifies the complexity and scale of the energy and environmental challenges that we face today, and threatens our future international competitiveness. With the U.S. accounting for roughly 8 percent of global oil reserves and a quarter of global oil demand, we cannot drill our way to energy independence. If the country is to have any hope of developing a long-term solution to the depletion of fossil fuels, or of reducing pollution from our need to continue to use fossil fuels in many applications for generations to come, those answers will likely be found through research by the National Labs, universities, and companies supported by DOE. However, those answers will be much harder to find if we undercut DOE’s vital research efforts.

National Oceanic and Atmospheric Administration (NOAA)

Democratic Members endorse the President’s request for NOAA. We are particularly concerned that funds sufficient to launch the full array of weather and climate sensors and satellites be made available in the FY 2012 budget.

National Institute of Standards and Technology (NIST)

Democratic Members are pleased that the President’s request provides support for the NIST lab complex as well as the Industrial Technology Services. The budget request is consistent with COMPETES Act goals and continues the Manufacturing Extension Program (MEP) on its doubling path. The MEP remains a very effective tool for

supporting small businesses. This program's focus on improving manufacturing capabilities is almost unique across the Federal government.

Department of Homeland Security (DHS)

The Democratic Members are supportive of the President's request for DHS Science and Technology. We are particularly pleased with the strong support shown in that budget for the Staffing for Adequate Fire and Emergency Response (SAFER) grants which support our Nation's emergency response community. However, the cuts to the Assistance to Firefighter Grants (AFG) program are troubling, and we would prefer that this program be fully funded at the FY2010 level.

Environmental Protection Agency (EPA)

The Majority's Views and Estimates state that: "Due to EPA's disturbing pattern of regulating based on insufficient or faulty scientific evidence, the Committee feels that it is unnecessary to continue EPA's research at existing levels until reforms are undertaken." Democratic Members strongly reject this view and support the President's request for EPA science.

The Majority make specific reference to the Integrated Risk Information System (IRIS). The Majority's characterization of the program is unrecognizable to anyone who has studied the record. EPA is currently trying to gain greater control over the IRIS process, an effort that the Majority describes as resulting in "decreased transparency" so that they can begin adding entries at a pace greater than two or three a year. The assertion that the IRIS "system is being used for ulterior purposes" is not buttressed by analysis. The problem with science at EPA is not that they do not do it well or that they abuse it, but that it is used by those who fear regulation to postpone risk assessments. IRIS entries go through multi-year reviews and some have even been forced to National Academy Assessments, and these endless efforts go on more than a decade without ever leading to an entry. That is not EPA's doing, but rather reflects the efforts of those who use the argument of scientific uncertainty to demand just one more study, one more literature review, one more outside panel before any regulation can ever be approved for action. IRIS has been the subject of multiple hearings by the Investigations and Oversight Subcommittee in the 110th and 111th Congresses as well as multiple reports by the Government Accountability Office (GAO)—the facts are available for anyone to review.

Department of Transportation (DOT)

Democratic Members of the Committee support DOT's continuing research into ways to build and maintain infrastructure in a manner that is energy efficient and reduces impacts on the environment; to identify and address deterioration and other potential safety problems with new and existing infrastructure; and to find efficient, sensible ways to reduce traffic congestion. We particularly support programs that would successfully transition research findings to state and local transportation planners.

Regarding the Federal Aviation Administration (FAA), Democratic Members are supportive of FAA's Research, Development and Technology initiatives, including NextGen, and urge funding of such initiatives in FY 2012 at the level requested by the Administration. In addition, Democratic Members look forward to receiving additional information at an upcoming hearing before finalizing our views on the proposed increase for the FAA's Office of Commercial Space Transportation.

Minority Views of the Democratic Caucus of the
Committee on Science, Space, and Technology
On the FY2012 Budget Request

Eddie Simpson

Ben Lof

Lynn Woolsey

Paul Ehl

Daniel Ljinski

Paul S. Tonko

[Signature]

Zoe Lof

Donna F. Edwards

Henry V. Costello

Hansen Clarke

Marcia J. Judge

Fredica S. Wilson

J.P. Bl

Jeri Sewell

Jo McNeely

**Minority Views of the Democratic Caucus of the
Committee on Science, Space, and Technology
On the FY2012 Budget Request**

Eddie Bernice Johnson

Donna F. Edwards

Ben R. Luján

Jerry F. Costello

Lynn Woolsey

Hansen Clarke

Brad Miller

Marcia L. Fudge

Daniel Lipinski

Frederica S. Wilson

Paul D. Tonko

John P. Sarbanes

David Wu

Terri Sewell

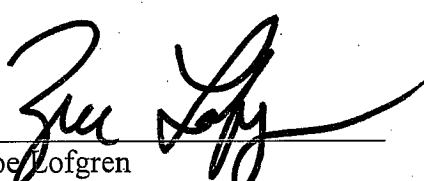
Zoe Lofgren

Jerry McNerney

**Additional Views of Representative Zoe Lofgren
On the FY2012 Budget Request**

The President's proposed budget for fiscal year 2012 includes strategic investments in science and research and development. I agree and join with my Democratic colleagues on the Committee in the Minority Views that "if we do not invest in education, in new ideas, and in new processes, we will deny our children the capacity to deal effectively with the crises that their generation will have to tackle."

I would like to further discuss the proposed National Aeronautics and Space Administration (NASA) budget. While I agree with my colleagues that the President's budget should align with the priorities established by Congress in the NASA Authorization Act of 2010 (P.L. 111-267), I do not share my colleagues' belief that the budget proposal conflicts with the Authorization Act or concerns regarding the budget's funding for commercial space. With the end of the NASA space shuttle program, we all agree that we need to ensure our ability to access the International Space Station (ISS). SpaceX, which is headquartered in Hawthorne, California, became the first commercial company to successfully re-enter a spacecraft from low-Earth orbit and recover that spacecraft with their Dragon demonstration in December. The robust funding provided for commercial in the President's budget would help to leverage private sector investments, like SpaceX, to accelerate the commercial sector's capacity to access the ISS. Further, President's budget includes important funding for technology research that will help ensure the United States remains a leader in space.

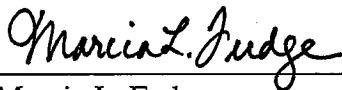


Zoe Lofgren
Member of Congress

Additional Views on the FY2012 Budget
Representative Marcia L. Fudge

Though I agree, in large part, with the Minority Views of the Democratic Caucus of the Committee on Science, Space, and Technology on the FY2012 Budget Request, I must state my opposition to the stated views on the proposed NASA budget. I believe that the President's Budget Request sets forth the plan needed to develop a robust space and aeronautics industry in the United States. By leveraging private sector funds with federal investments, we will increase our national competition and progress.

However, what is most important to me and my constituents is the proposal's focus on research and development (R&D) within the agency. I believe that we are at a critical time in our history where technology and innovation represent the future of our country. It is the role of the federal government to invest in a diverse portfolio of basic R&D that will carry our space and aeronautics industry forward. If we truly want to build the vehicles of the future, we must make these investments now. I urge my colleagues to protect all R&D funding in the proposal for the sake of our global leadership and future prosperity.



Marcia L. Fudge
Member of Congress

Additional Views Submitted by Mr. Tonko for the FY2012 Budget Request

The President's leadership on science, clean energy, research, and development is once again on display with the FY 2012 budget request. His goal is clear: we must out-innovate our competitors in a global clean energy race to win the future. We cannot win the future, however, if we pull the rug out from under our nation's feet. We cannot afford to go backward. And yet, it seems as though that is exactly what the new majority in the House of Representatives intends for our country to do. H.R. 1 and recent short-term Continuing Resolutions for FY2011 funding have repeatedly made drastic cuts to scientific programs. These cuts would not only stop innovative research from taking place, but would fire some of the nation's leading scientists. Doing so destroys our ability to lead the innovation economy now, and in the future. Cuts of this magnitude will ensure that our country will lose its leadership role and will jeopardize the recovery from our worst economic crisis since the Great Depression.

While I agree with the Minority's Views and Estimates, I want to also highlight programs related to nanotechnology and their importance to our nation's economic future. I hope this guidance will help show the importance of these investments.

Programmatic Guidance

National Institute of Standards and Technology (NIST)

I support the NIST budget level as proposed by the President to continue to support research in nanotechnology, including additional funds for developing measurements to support the manufacture and production of nanotechnology-based products. These increases will support NIST's programs in user facility instrumentation, and increase the support for measurement research necessary to enable the development of nanomanufacturing technologies in support of the Nanotechnology Signature Initiatives. This focus will help bring our remaining manufactures into the innovation economy by enabling them to manufacture new nanotechnologies here at home. Congress should support this effort as an investment in American technology manufacturing.

National Science Foundation (NSF)

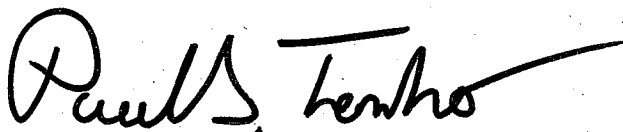
The programs outlined below build on the success of past research and their budget requests reflect an attempt by the Obama Administration to meet the overwhelming demand from industry for assistance.

NSF Nanomanufacturing. The full 2012 request is \$57.2 million, which is aimed at enabling scaled-up, reliable, and cost-effective manufacturing of nanoscale materials, structures, devices, and systems. More specifically, the increased funding will support new concepts for high-rate synthesis and processing of nanostructures, nanostructured catalysts, nanobiotechnology methods, surface engineering, design and fabrication methods for devices, and assembly of

devices into nanosystems to be incorporated into larger-scale structures of relevance in industry, sustainability, and medicine. Partnerships between research centers and small businesses in the areas of manufacturing and commercialization will be strengthened while maintaining the same level of NSF investment. Creating partnerships is the most effective way to use taxpayer money and the President's budget should be commended for supporting these efforts.

Major Research Facilities & Instrumentation Acquisition. The 2012 request includes \$31.5 million, supporting funding for user facilities, acquisition of major instrumentation, and other activities that develop, support, or enhance the scientific infrastructure for the conduct of nanoscale science, engineering, and technology research and development. Partnerships of research centers with small businesses in the areas of nanomanufacturing and commercialization will be strengthened while maintaining the same level of NSF investment.

Sincerely,

A handwritten signature in black ink that reads "Paul D. Tonko". The signature is written in a cursive style with a long, sweeping horizontal line extending to the right.

Paul D. Tonko
Member of Congress