

(5) conduct collaborative research, development, and demonstration of methods and technologies to—

(A) improve the efficiency of agriculture operations and processing of agricultural products; and

(B) reduce greenhouse gas emissions associated with such operations and such processing.

(d) AGREEMENTS.—In carrying out the activities under subsection (a), the Secretaries are authorized to—

(1) carry out reimbursable agreements between the Department of Energy, the Department of Agriculture, and other entities in order to maximize the effectiveness of research and development; and

(2) collaborate with other Federal agencies as appropriate.

(e) REPORT.—Not later than two years after the date of the enactment of this Act, the Secretaries shall submit to the Committee on Science, Space, and Technology and the Committee on Agriculture of the House of Representatives, and the Committee on Energy and Natural Resources and the Committee on Agriculture, Nutrition, and Forestry of the Senate, a report detailing the following:

(1) Interagency coordination between each Federal agency involved in the research and development activities carried out under this section.

(2) Potential opportunities to expand the technical capabilities of the Department of Energy and the Department of Agriculture.

(3) Collaborative research achievements.

(4) Areas of future mutually beneficial successes.

(5) Continuation of coordination activities between the Department of Energy and the Department of Agriculture.

(f) RESEARCH SECURITY.—The activities authorized under this section shall be applied in a manner consistent with subtitle D of title VI of the Research and Development, Competition, and Innovation Act (enacted as division B of Public Law 117-167; 42 U.S.C. 19231 et seq.).

The SPEAKER pro tempore. Pursuant to the rule, the gentleman from Oklahoma (Mr. LUCAS) and the gentlewoman from California (Ms. LOFGREN) each will control 20 minutes.

The Chair recognizes the gentleman from Oklahoma.

#### GENERAL LEAVE

Mr. LUCAS. Mr. Speaker, I ask unanimous consent that all Members may have 5 legislative days in which to revise and extend their remarks and include extraneous material on H.R. 1713, the bill now under consideration.

The SPEAKER pro tempore. Is there objection to the request of the gentleman from Oklahoma?

There was no objection.

Mr. LUCAS. Mr. Speaker, I yield myself such time as I may consume.

Mr. Speaker, I rise in support of H.R. 1713, the DOE and USDA Interagency Research Act.

This bill allows the Department of Energy and the Department of Agriculture to work together to improve how we grow our food, fiber, and fuel in America.

As a farmer and rancher myself, I am proud to sponsor this bill, which will help us address cross-cutting research challenges that will advance crop science, maximize carbon storage, enhance precision agricultural technologies, and more.

DOE and USDA already have a successful track record of collaboration to mitigate invasive species, modernize the grid, address the energy-water nexus, develop biofuels, and improve agriculture operations.

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DOE has some of the country's most advanced computing capacities as well as world-class research facilities and a depth of scientific expertise.

These resources can be used to support the work being done by America's farmers and ranchers, ultimately strengthening our agricultural production.

The bill before us today is smart, bipartisan legislation that codifies the partnership between DOE and USDA, ensuring they can continue to work together on these interdisciplinary challenges.

I thank my Ranking Member ZOE LOFGREN for working with me on this legislation and helping to pass it through the Science Committee with unanimous support.

I appreciate her support of agriculture research, and I urge all of my colleagues to join us in supporting this bill.

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

Ms. LOFGREN. Mr. Speaker, I yield myself such time as I may consume.

Mr. Speaker, I rise in support of this bipartisan bill introduced by Chairman LUCAS and myself authorizing cross-cutting, joint research and development between the Department of Energy and the U.S. Department of Agriculture.

Together, these agencies leverage their incredible capabilities to address some of our multidisciplinary research challenges in crop science, carbon storage, and precision agriculture technologies.

Codifying the partnership between these agencies is a testament to our commitment to combat climate change and to serve the agricultural communities like those in my district and throughout the Nation.

We generated substantial momentum through the bipartisan CHIPS and Science Act, which included research support toward agricultural productivity improvement goals.

This bill will sustain and strengthen this momentum by empowering deeper cooperation between two of our top science agencies, enabling national research and ag capability to fully realize the opportunities presented by new and emerging technologies.

The technologies that are being used on farms in my district are really cutting edge. For example, on farms in my district, there is in use a giant machine that roams the fields, and by computer, identifies weeds and zaps them with lasers.

This is done automatically, it doesn't use any pesticides, and those weeds are permanently gone. It is really an example of how we are entering a high-tech

area in precision agriculture. The Federal Government can help facilitate progress in this field through bills like the one before us today.

Mr. Speaker, I encourage all of my colleagues to support this bill, and as I have no additional speakers, I yield back the balance of my time.

Mr. LUCAS. Mr. Speaker, I yield myself the balance of my time.

Mr. Speaker, as we have heard, H.R. 1713, the DOE and USDA Interagency Research Act, is smart, bipartisan policy to make it easier to address the agriculture research challenges facing our Nation.

By passing this bill, we are supporting the science and technology that will enable easier production agriculture.

I thank Ranking Member ZOE LOFGREN for her support of this critical issue. I urge all my colleagues to join me in supporting this bill.

Mr. Speaker, I yield back the balance of the time.

The SPEAKER pro tempore. The question is on the motion offered by the gentleman from Oklahoma (Mr. LUCAS) that the House suspend the rules and pass the bill, H.R. 1713, as amended.

The question was taken; and (two-thirds being in the affirmative) the rules were suspended and the bill, as amended, was passed.

A motion to reconsider was laid on the table.

#### DOE AND NSF INTERAGENCY RESEARCH ACT

Mr. LUCAS. Mr. Speaker, I move to suspend the rules and pass the bill (H.R. 2980) to provide for Department of Energy and National Science Foundation research and development coordination, and for other purposes, as amended.

The Clerk read the title of the bill.

The text of the bill is as follows:

H.R. 2980

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,*

#### SECTION 1. SHORT TITLE.

This Act may be cited as the "DOE and NSF Interagency Research Act".

#### SEC. 2. DEPARTMENT OF ENERGY AND NATIONAL SCIENCE FOUNDATION RESEARCH AND DEVELOPMENT COORDINATION.

(a) IN GENERAL.—The Secretary of Energy (in this section referred to as the "Secretary") and the Director of the National Science Foundation (in this section referred to as the "Director") shall carry out cross-cutting and collaborative research and development activities focused on the joint advancement of Department of Energy and National Science Foundation mission requirements and priorities.

(b) MEMORANDUM OF UNDERSTANDING.—The Secretary and the Director shall coordinate the activities under subsection (a) through the establishment of a memorandum of understanding, or other appropriate interagency agreement. Such memorandum or agreement, as the case may be, shall require the use of a competitive, merit-reviewed

process, which considers applications from Federal agencies, National Laboratories, institutions of higher education, non-profit institutions, and other appropriate entities.

(c) **COORDINATION.**—In carrying out the activities under subsection (a), the Secretary and the Director may—

(1) conduct collaborative research in a variety of focus areas, such as—

(A) basic plasma science and engineering, including applications in astrophysics, materials science, fusion science, and accelerator science;

(B) fundamental biological and computational science and engineering, including computational neuroscience and neuromorphic computing, including in collaboration with the program authorized under section 306 of the Department of Energy Research and Innovation Act (42 U.S.C. 18644);

(C) modeling and simulation, machine learning, artificial intelligence, data assimilation, large-scale data analytics, predictive analysis, and advanced computational, storage, and networking capabilities in order to optimize algorithms for purposes related to energy and climate;

(D) quantum information sciences, including quantum computing and quantum network infrastructure, including in collaboration with the programs authorized under sections 403 and 404 of the National Quantum Initiative Act (15 U.S.C. 8853 and 8854);

(E) energy and materials science and engineering, including artificial photosynthesis, plasma, solar fuels, and fusion, including in collaboration with the programs authorized under sections 303 and 307 of the Department of Energy Research and Innovation Act (42 U.S.C. 18641 and 18645), and section 973 of the Energy Policy Act of 2005 (42 U.S.C. 16313);

(F) advanced manufacturing technologies, including efficient storage systems and alternatives to high-temperature processing, for the purposes of optimizing energy consumption, including in collaboration with the program authorized under section 975 of the Department of Energy Research and Innovation Act (42 U.S.C. 16315);

(G) microelectronics, including novel chip architectures, memory systems, and interconnects; and

(H) advanced physics, including high energy and particle physics, accelerator research and development, and high performance computational tools, including in collaboration with the programs authorized under section 303 of the Department of Energy Research and Innovation Act (42 U.S.C. 18641);

(2) promote collaboration, open community-based development, and data and information sharing between Federal agencies, National Laboratories, institutions of higher education, non-profit institutions, and other appropriate entities by providing the necessary access and secure data and information transfer capabilities;

(3) support research infrastructure, including new facilities and equipment, as the Secretary and Director determine necessary; and

(4) organize education, training, and research initiatives relating to STEM education and workforce development, including—

(A) internships, fellowships, and other research or work-based learning opportunities;

(B) educational programming for students at all levels, especially experiential and project-based learning opportunities; and

(C) professional development opportunities for educators and researchers.

(d) **AGREEMENTS.**—In carrying out the activities under subsection (a), the Secretary and the Director are authorized to—

(1) carry out reimbursable agreements between the Department of Energy, the National Science Foundation, and other entities in order to maximize the effectiveness of research and development; and

(2) collaborate with other Federal agencies, as appropriate.

(e) **REPORT.**—Not later than two years after the date of the enactment of this section, the Secretary and the Director shall submit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Energy and Natural Resources and the Committee on Commerce, Science, and Transportation of the Senate a report detailing the following:

(1) Interagency coordination between each Federal agency involved in the research and development activities carried out under this section.

(2) Potential opportunities to expand the technical capabilities of the Department of Energy and the National Science Foundation.

(3) Collaborative research achievements.

(4) Areas of future mutually beneficial successes.

(5) Continuation of coordination activities between the Department of Energy and the National Science Foundation.

(f) **RESEARCH SECURITY.**—The activities authorized under this section shall be applied in a manner consistent with subtitle D of title VI of the Research and Development, Competition, and Innovation Act (enacted as division B of Public Law 117-167; 42 U.S.C. 19231 et seq.).

The **SPEAKER pro tempore.** Pursuant to the rule, the gentleman from Oklahoma (Mr. LUCAS) and the gentlewoman from California (Ms. LOFGREN) each will control 20 minutes.

The Chair recognizes the gentleman from Oklahoma.

#### GENERAL LEAVE

Mr. LUCAS. Mr. Speaker, I ask unanimous consent that all Members may have 5 legislative days in which to revise and extend their remarks and include extraneous material on H.R. 2980, the bill now under consideration.

The **SPEAKER pro tempore.** Is there objection to the request of the gentleman from Oklahoma?

There was no objection.

Mr. LUCAS. Mr. Speaker, I yield myself such time as I may consume.

Mr. Speaker, I rise in support of H.R. 2980, the DOE and NSF Interagency Research Act. This bill supports the longstanding partnership between the Department of Energy and the National Science Foundation, allowing them to work on cutting-edge and research technology challenges.

DOE is our Nation's largest supporter of basic research in the physical sciences, while NSF is the backbone of the collaborative research environment between government and academia.

Together, they can tackle some of the Nation's toughest challenges in physics, quantum information sciences, artificial intelligence, and material science.

The bill enhances both DOE and NSF's capacities and leverages each other's investments in research and development, maximizing the impact of our taxpayer dollars.

There has never been a more important time for this kind of breakthrough

research. The Chinese Communist Party has made no secret of their goal to surpass us as the world leader in science and technology.

They are attempting to outspend us, out-educate us, and outpace us in everything from quantum computing to advanced manufacturing.

They know that the Nation that leads the way in technological development sets the rules of the road and determines how that technology will be used.

We simply cannot afford to live in a world where China is technologically ahead of us. It is bad for our economy and dangerous for our national security.

We must ensure our investments in research and development go as far as possible. This bill helps us to do that.

By authorizing the collaboration between DOE and NSF, we are maximizing our return on investments and ensuring we can stay on the cutting edge of technological development.

I thank my colleagues, Representatives STEVENS and BAIRD, for introducing this important legislation and shepherding it through the Science Committee where it passed unanimously.

Mr. Speaker, I urge my colleagues to support this bill, and I reserve the balance of my time.

Ms. LOFGREN. Mr. Speaker, I yield myself such time as I may consume.

Mr. Speaker, I rise in support of this bipartisan bill introduced by Ms. STEVENS and Mr. BAIRD authorizing collaborative research between the Department of Energy and the National Science Foundation in critical areas of our national competitiveness.

It builds on the longstanding partnership between these agencies to leverage each other's investments and expertise in a wide range of fields, including quantum science, artificial intelligence, fusion energy, and advanced manufacturing.

Alongside these research partnerships, it also authorizes collaborative initiatives in education and training and development of a strong STEM workforce. We will not be able to succeed unless we have the talented workforce to get the job done.

Lastly, it promotes secure data and information transfer capabilities between both agencies to develop a shared, agile data ecosystem.

In a time when many emerging technologies are on our doorstep, it is important that we empower our leading science agencies to work with each other to capture these interdisciplinary opportunities.

Both NSF and DOE have an extensive history of joint activities such as support for the development of the Vera C. Rubin Observatory, a world-class tool for scientific discovery in astronomy.

The DOE and NSF Interagency Research Act strengthens the legislative foundation that was set in the CHIPS and Science Act, and this enables both agencies to foster a more collaborative

research environment to maximize their collective impacts on our Nation.

Mr. Speaker, for all of these reasons, I strongly urge all of my colleagues to support this bill, and I reserve the balance of my time.

Mr. LUCAS. Mr. Speaker, I have no further speakers, and I reserve the balance of my time.

Ms. LOFGREN. Mr. Speaker, the Science Committee is blessed to have many talented Members of Congress dedicated to science and our future.

One of them is one of the coauthors of this bill, a senior Member of the committee and a talented Member of Congress.

Mr. Speaker, I yield such time as she may consume to the gentlewoman from Michigan (Ms. STEVENS).

Ms. STEVENS. Mr. Speaker, I thank Ranking Member LOFGREN for her very kind and generous words. I can only hope that my constituents in Michigan hear the praise from the ranking member from the great State of California for the work that we do together on the Science Committee.

Certainly, it is a sincere privilege to be also joined on the floor today with our chairman, Mr. LUCAS, as he reminded us with the TRANQ legislation that Ms. CARAVEO and Mr. WILLIAMS will be the first Members of the freshman class to get a bill signed into law for this term in Congress.

It wasn't all too long ago when Dr. BAIRD and myself shared that same distinction for the Building Blocks of STEM Act, the bill that we passed through the Science Committee, through the House floor, and alongside our colleagues in the Senate, getting it signed into law on December 24th, 2019.

Suffice it to say, Dr. BAIRD and I were not at the White House for the signing of the Building Blocks of STEM Act.

Today, Dr. BAIRD and I are pleased to offer the DOE and NSF Research Interagency Act to the House floor, a bill that has already passed through the Science Committee.

The Department of Energy and the National Science Foundation represent some of our Nation's most cutting-edge research activities, as has been shared by our committee leadership, supporting the innovation that we require to solve our most pressing issues and remain competitive on the world stage.

The DOE and NSF employees, in particular, are not necessarily in two buildings that are right next to each other. They are in a similar geographic area, but they do not share building space.

The employees and the funded researchers are world-renowned scientific minds, and they are pushing on the door of what we think is possible.

They are making science fiction a reality every single day, and we encourage and implore their activities to proliferate, to manifest, and to continue to come together, particularly on the heels of the CHIPS and Science Act, a bill that many of us, including myself

on the Science Committee, helped to author and pass through into law just a little over a year ago.

If we are going to achieve the goals of the CHIPS and Science Act without the full funding, particularly for the NSF, we need this legislation. We need the interagency efforts of DOE and NSF to come together.

We will continue to promote cross functionality of research if it is with Lawrence Livermore National Laboratory in fusion science, or if it is combining the DOE's expertise in computational sciences, including the scientific potential of the fastest supercomputers in the world.

What NSF is doing with artificial intelligence and machine learning will continue to be key to unlocking the metrics needed to create safe and trustworthy AI applications so the United States can continue to lead in this innovation sector.

Combining NSF's material science expertise, which the United States is in a phenomenal race to lead on, with the work being done across the Department of Energy and the Ames National Laboratory on critical minerals will be key not only to untangling our supply chains but in creating a circular economy that promotes worker safety and environmental protections while securing our economic prosperity, energy independence, and national security for decades to come.

Lastly, combining the work that both agencies are doing with quantum technologies will be key to unlocking the potential of this revolutionary emerging technology, including for our manufacturers and applications for cybersecurity.

These are just some of the examples of the amazing potential that fostering a partnership between the Department of Energy and the National Science Foundation will mean for our Nation and the next generation, proving once again that Federal sciences are the key to our Nation's future.

Mr. Speaker, I urge my colleagues on both sides of the aisle to support this bill to push forward our Nation's scientific ecosystem and bolster our competitiveness on the world stage.

Mr. LUCAS. Mr. Speaker, I have no further requests for time, and I am prepared to close.

Ms. LOFGREN. Mr. Speaker, I yield back the balance of my time.

Mr. LUCAS. Mr. Speaker, once again, I rise in support of H.R. 2980, the DOE and NSF Interagency Research Act.

This will accelerate U.S. competitiveness in emerging technology areas and key economic sectors while enabling taxpayer dollars to be used more efficiently, allowing more to be done with less.

I appreciate all the work done by my colleagues, Representatives Stevens and BAIRD, and I urge my colleagues to support this bill.

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

The SPEAKER pro tempore. The question is on the motion offered by

the gentleman from Oklahoma (Mr. LUCAS) that the House suspend the rules and pass the bill, H.R. 2980, as amended.

The question was taken; and (two-thirds being in the affirmative) the rules were suspended and the bill, as amended, was passed.

A motion to reconsider was laid on the table.

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## DOE AND NASA INTERAGENCY RESEARCH COORDINATION ACT

Mr. LUCAS. Mr. Speaker, I move to suspend the rules and pass the bill (H.R. 2988) to provide for Department of Energy and National Aeronautics and Space Administration research and development coordination, and for other purposes, as amended.

The Clerk read the title of the bill.

The text of the bill is as follows:

H.R. 2988

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,*

### SECTION 1. SHORT TITLE.

This Act may be cited as the "DOE and NASA Interagency Research Coordination Act".

### SEC. 2. DEPARTMENT OF ENERGY AND NATIONAL AERONAUTICS AND SPACE ADMINISTRATION RESEARCH AND DEVELOPMENT COORDINATION.

(a) IN GENERAL.—The Secretary of Energy (in this section referred to as the "Secretary") and the Administrator of the National Aeronautics and Space Administration (in this section referred to as the "Administrator") may carry out, as practicable, cross-cutting and collaborative research and development activities to support the advancement of Department of Energy and National Aeronautics and Space Administration mission requirements and priorities. The Secretary and Administrator, in accordance with subsection (e), may make competitive awards to carry out such activities.

(b) MEMORANDA OF UNDERSTANDING.—The Secretary and the Administrator shall coordinate the activities under subsection (a) through memoranda of understanding, or other appropriate interagency agreements.

(c) COORDINATION.—In carrying out the activities under subsection (a), the Secretary and the Administrator may—

(1) conduct collaborative research and development activities in a variety of focus areas that may include—

(A) propulsion systems and components, including nuclear thermal and nuclear electric propulsion, radioisotope power systems, thermoelectric generators, advanced nuclear fuels, and heater units;

(B) modeling and simulation, machine learning, data assimilation, large scale data analytics, and predictive analysis in order to optimize algorithms for mission-related purposes;

(C) fundamental high energy physics, astrophysics, and cosmology, including the nature of dark energy and dark matter, in accordance with section 305 of the Department of Energy Research and Innovation Act (42 U.S.C. 18643);

(D) fundamental earth and environmental sciences, in accordance with section 306 of the Department of Energy Research and Innovation Act (42 U.S.C. 18644) and section 60501 of title 51, United States Code;