



**ENERGY SCIENCES
COALITION**

Statement in Support of DOE Provisions in A Final Innovation and Competitiveness Legislative Package

March 7, 2022

Dear Speaker Pelosi, Minority Leader McCarthy, Majority Leader Schumer, Minority Leader McConnell, Chairwoman Johnson, Ranking Member Lucas, Chairman Manchin, and Ranking Member Barrasso:

On behalf of the more than 100 organizations involved in the Energy Sciences Coalition (ESC), we write in strong support of including Department of Energy (DOE) provisions in a final innovation package. Specifically, we urge you to include the DOE Science for the Future Act, investments in DOE programs advancing key emerging technology focus areas, upgrading national laboratory infrastructure, and other DOE-focused provisions such as technology transfer and bioeconomy initiatives consistent with the House-passed America COMPETES Act (H.R. 4521), the Senate-passed U.S. Innovation and Competition Act (USICA, S. 1260), and the Senate-introduced DOE Science for the Future Act.

We thank you for your continued support for DOE and recognizing the unique role DOE plays in maintaining U.S. competitiveness and advancing leadership in science, technology, and innovation in partnership with other science agencies, such as the National Science Foundation. The DOE Science for the Future Act and emerging technology provisions make bold new investments in fundamental research, world-class science facilities, and workforce development. In particular, new investments and science initiatives proposed in current legislation are needed to stay ahead of international competition, develop and support a highly skilled and diverse science and technology workforce, and create American jobs of the future in key energy sectors as well as new technology areas such as microelectronics, high-performance computing, artificial intelligence, biotechnology, and quantum information science.

We believe final legislation should support several key aspects critical to the future success of DOE and in particular the Office of Science: 1) growing core research in the physical sciences and other Office of Science-supported scientific disciplines, 2) investing in new research and emerging technology initiatives to maintain U.S. leadership, 3) accelerating the construction of world-class scientific user facilities and 4) expanding workforce development programs.

The Energy Sciences Coalition (ESC) is a broad-based coalition of organizations representing scientists, engineers and mathematicians in universities, industry and national laboratories who are committed to supporting and advancing the scientific research programs of the U.S. Department of Energy (DOE), and in particular, the DOE Office of Science.

Specifically, the ESC supports:

- **The DOE Science for the Future Act:** ESC supports the \$50 billion investment in the DOE Office of Science over the next five years. Specifically, ESC supports:
 - **Growth for core fundamental research.** ESC strongly supports a seven percent annual increase for all six Office of Science core research programs over the next five years, supporting a balanced portfolio of university and national lab programs. This type of investment will reverse declines in research funding over the last several years and take into account inflationary pressures and declining purchasing power. Robust investments in core research programs are necessary to maintain U.S. leadership in science and technology, form the foundation for advancing critical industries of the future and major research initiatives, train the next-generation workforce, and fully utilize our investments in world-class scientific infrastructure.
 - **New research initiatives.** ESC strongly supports the new research initiatives proposed in the bill to address pressing energy, climate, and environmental challenges. These include program-specific initiatives such as the Next Generation and Energy Efficient Computing programs, the Quantum Networking and Quantum Computing and Cloud programs, fusion system design activities, and the Milestone-Based Fusion Energy Development program, as well as cross-cutting initiatives such as a High Intensity Laser Research program. ESC also strongly supports new funding mechanisms, such as the mid-scale instrumentation program, that will take advantage of new world-class scientific user facilities.
 - **Accelerating construction of world-class user facilities.** ESC supports the bill's authorization levels to accelerate construction and upgrades of major, large-scale scientific facilities. The authorization levels are based on technically-driven schedules rather than funding-limited schedules to stay ahead of international competition. These projects are necessary to maintain U.S. leadership and help attract and retain the best scientific talent.
 - **Increased funding for workforce development programs and new programs to address diversity, equity and inclusion.** ESC supports efforts to grow existing programs, such as the Graduate Student and the Science Undergraduate Laboratory Internship programs, to meet growing needs for a highly-trained STEM workforce. This also includes growth in university research programs as vehicles to train and develop faculty and students for an advanced science and technology workforce. ESC also supports new, dedicated efforts to expand opportunities to increase the number and the diversity, equity, and inclusion of highly skilled STEM professionals working in DOE mission-relevant disciplines and broaden the recruitment pool to increase diversity, including expanded partnerships with minority-serving institutions, emerging research institutions, and scientific societies. ESC also supports efforts to coordinate with the National Science Foundation on its Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science National Network (INCLUDES) program.
 - **Alternative financing of research facilities and infrastructure.** ESC supports the inclusion of new provisions that allow DOE and the national labs to utilize alternative financing to modernize critical infrastructure at the national labs. The Office of Science faces close to \$1 billion in deferred maintenance across the 10 Office of Science national labs. Alternative financing is a potential tool to help address aging general-purpose infrastructure – such as office space, general laboratory space, storage space and utilities – which forms the backbone of the DOE enterprise. Proposing new ways to maintain, repair, upgrade and replace general purpose infrastructure would foster safe, efficient, reliable and

environmentally responsible operations, while also boosting morale of the scientific and engineering workforce at the national laboratories.

- **Emerging Technologies Innovation.** ESC supports including an authorization of \$16.9 billion, consistent with USICA, over five years to support programs across DOE that advance the development and commercialization of key technologies in emerging industries, such as quantum information science, artificial intelligence, advanced energy storage devices, and biotechnology. This extends beyond the DOE Office of Science and complements fundamental research investments and use-inspired research that would be supported by the DOE Science for the Future Act. This additional investment would support DOE's applied energy programs and technology transfer and commercialization programs that would accelerate market adoption of innovations coming out of the Office of Science. This would also help expand the expertise and capabilities of the 17 DOE national laboratories and corresponding university-led programs to further support these transformative new industries. A unique feature of DOE is science at scale. DOE has a long history of combining the talent and capabilities of the national laboratories' unique science facilities, the country's leading research universities, and industry to bring together multi-disciplinary teams to tackle science, energy, and national security grand challenges. The most recent examples are the five DOE-led national quantum information science research centers and Energy Innovation Hubs.
- **Modernize DOE National Laboratory Infrastructure.** ESC supports the \$30 billion investment over five years in the House-passed and Senate-introduced Restore and Modernize Our National Laboratories Act (H.R. 4514, S.2232) to upgrade aging infrastructure at all 17 DOE national labs. This bill complements investments in Science Laboratory Infrastructure in the DOE Science for the Future Act for the 10 Office of Science-managed laboratories, but also further expands investments to the other 7 DOE-managed laboratories. DOE facilities currently have an average age of 37 years and the systems that support these facilities (e.g., water, sewage, electrical, roads) have an average age of 40 years. General purpose infrastructure, such as office space, general laboratory space, storage space, and utilities, enables DOE's mission and forms the backbone of the DOE enterprise. Modern, reliable infrastructure at the National Laboratories is critical to support world class science facilities and address science and technology challenges of the future.
- **Technology Commercialization.** ESC supports the technology transfer and commercialization provisions in the Energizing Technology Transfer Act (H.R. 4606) focused on expanding programs that accelerate the commercialization of clean energy technologies, foster partnerships with national laboratories, leverage university commercialization and startup activities, provide easier access to new invention disclosures and publicly-funded intellectual property, and support entrepreneurial fellows. This includes programs such as regional clean energy innovation centers, clean energy technology university prize competitions, national clean energy incubators, the Lab Partnering Service, and lab-embedded entrepreneurship.
- **DOE Support of the Bioeconomy.** ESC supports the DOE provisions in the House- and Senate-passed Bioeconomy Research and Development Act as part of USICA and COMPETES. Specifically, ESC supports a broad research, development, and demonstration program focused on engineering biology to advance biofuel and bioproduct development, biobased materials, and environmental remediation as well as support for new facilities, tools, and instruments to advance both fundamental research and commercial applications.

- **Microelectronics Research Program.** ESC supports a cross-cutting microelectronics research and development initiative at DOE consistent with the Microelectronics Research for Energy Innovation Act (H.R. 6291) in COMPETES. This includes a fundamental research program to accelerate innovation in microelectronics for science, energy, national security, and other industrial applications and leverages DOE's assets in areas such as materials science, plasma sciences, fabrication, device architecture, energy efficiency computing, and grid optimization. ESC also supports the creation of Microelectronics Science Research Centers to bring together multi-disciplinary teams from national labs, research universities, and industry to address grand challenges in the design, development, and fabrication of microelectronics. This complements and provides additional guidance to investments in the DOE Science for the Future Act and \$16.9 billion in authorization for emerging technology areas.

ESC thanks you for advancing this important legislation and looks forward to continue working with you on future appropriations to fund the many important initiatives in a final innovation package.

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