ENERGY SCIENCES COALITION

November 1, 2024

Dear Chairman Fleischmann, Chairwoman Murray, Ranking Member Kaptur, and Ranking Member Kennedy,

Thank you for your strong, bipartisan support of the U.S. Department of Energy (DOE) Office of Science. **As you prepare a final fiscal year (FY) 2025 Energy and Water appropriations bill, the Energy Sciences Coalition (ESC) urges you to appropriate at least $8.6 billion in FY 2025 for the DOE Office of Science, consistent with the Senate mark.** ESC also recommends that Congress provide an additional $900 million in supplemental funding to increase total appropriations in FY 2025 for the DOE Office of Science to $9.5 billion, consistent with the FY 2024 authorized funding level in the bipartisan *CHIPS and Science Act*.

The DOE Office of Science, the nation's largest funder of the physical sciences, has long enjoyed widespread and bipartisan support in Congress. It supports groundbreaking scientific discoveries, builds and maintains the nation's largest collection of world-class scientific facilities, advances key emerging technologies such as quantum information science and artificial intelligence, is mission-focused on advancing energy technologies needed for the nation to meet net-zero carbon emissions, and helps maintain the U.S. pipeline of science and engineering talent. The Office of Science is also unique among federal science agencies by supporting the network of 17 DOE national laboratories—a competitive advantage for the nation's research and innovation ecosystem—and directly stewards 10 of them.

The $360 million increase proposed in the Senate bill is the minimum necessary to advance the critical missions of DOE Office of Science. Specifically, ESC supports proposed funding levels in the Senate bill for various cross-cutting research and development activities as well construction and operations of world-leading facilities and experiments, including:

- $260 million to grow investments in **artificial intelligence (AI) and machine learning**, including $100 million for the new Frontiers in AI for Science, Security, and Technology (FASST) initiative.
- $110 million to grow investments in **microelectronics**, including support for the Microelectronics Science Research Centers authorized in the *CHIPS and Science Act*.
- At least $265 million to continue investments in **quantum information science (QIS)**, including full funding for the five DOE National QIS Research Centers and maintaining a broad-based foundational and use-inspired research program for quantum computing, sensors, networking, and communications.
- Mostly funding **major research facility construction and national lab infrastructure modernization projects** consistent with current cost and schedule profiles to stay ahead of

international competition, address major maintenance issues, and continue to attract the best and brightest talent.

- Boosting **operations** funding of the 28 Office of Science research facilities to maintain access and experimental support to more than 38,000 researchers each year.
- Continued support for **multi-disciplinary centers** focused on addressing scientific grand challenges, such as Energy Frontier Research Centers, Bioenergy Research Centers, Energy Innovation Hubs, and National Quantum Information Science Research Centers.
- Sustaining funding for **workforce development and STEM training and education programs**, including programs that broaden participation.

ESC appreciates these increased investments. However, we remain concerned about funding shortfalls in both the House and Senate bills. These shortfalls can only be addressed with additional resources. If additional funding becomes available, ESC has several major recommendations:

- **Reverse cuts to fundamental research that supports Nobel Prize-winning discoveries and drives innovation in clean energy solutions and emerging technologies.** Overall, core research could see a continued decline. Core research saw a cut of 2.4 percent in the final FY 2024 enacted budget and proposed FY 2025 funding levels would result in another 6 percent cut. ESC is concerned in particular with reductions in critical research disciplines including materials, chemistry, geosciences, biological sciences, particle physics and nuclear physics. This comes on the heels of cuts enacted in FY 2024 for these same research areas, meaning at least two years in a row of cuts. For example, core research programs supported by Basic Energy Sciences, such as materials and chemistry, would see a cut of $57 million or close to 6 percent compared to the FY 2023 enacted funding level. The U.S. risks falling behind if cuts continue to research programs that serve as the scientific foundations for innovations in clean energy and emerging technologies. More concerning is that these cuts translate into less support for U.S. researchers and students in STEM fields. The U.S. needs to grow, not shrink, its workforce. Consistent with the *CHIPS and Science Act*, ESC recommends an increase of 7 percent to all core research programs, or an additional $287 million above the House and Senate marks. This level of funding would start to reverse cuts or flat funding for core research in most programs and advance the highest priority research areas outlined in Office of Science advisory committee reports, strategic plans, and workshop reports.
- **Maximize facility operations.** ESC strongly supports the proposed increase of approximately $178 million to facility operations across the Office of Science. This is necessary to operate existing facilities and experiments and support more than 36,000 researchers from academia, industry and federal agencies who rely on these facilities for their science and engineering pursuits. However, even with the proposed increase, the funding only supports 88% of operations. This means significant missed opportunities for thousands of additional users to advance mission-relevant science. ESC recommends an additional $113 million to achieve close to 91% of facility operations and fund critical maintenance activities to ensure long-term operation.
- **Accelerate the construction and upgrades of world-class scientific user facilities and major equipment.** ESC supports the increases in the House and Senate bills to keep most major facility line-item construction projects and major items of equipment on time and on budget. However, ESC is concerned that even these funding levels fall short of DOE-approved and *CHIPS and Science Act* authorized project profile funding for several critical research facilities and experiments. There are also opportunities to add funding to some key projects that could be accelerated since they are funding constrained rather than schedule constrained. There is also little to no research and development funding to define and guide future facility needs. ESC recommends an additional $200 million to fully fund and accelerate construction projects and state-of-the-art equipment and an additional $100 million for research and development for next-generation facilities.

- **Upgrade national lab scientific infrastructure.** ESC strongly supports the proposed increases to the Science Laboratories Infrastructure program, including increases for both existing line-item construction projects and general plant projects. These investments in upgrading and replacing aging utilities, roads, office buildings and other general purpose infrastructure are essential for the safe, reliable, and resilient operation of the 10 Office of Science national laboratories as well as a critical tool in the recruitment and retention of leading scientists and engineers. However, ESC is concerned that based on current budget projections no new projects will start until 2028. Based on a DOE Office of Science FY 2022 assessment of the 10 national labs it stewards, 43 percent of general-purpose buildings were rated as substandard or inadequate to meet mission needs, 71 percent of utility systems were rated as substandard or inadequate, and 35 percent of the remaining support infrastructure was rated as substandard or inadequate. According to DOE, the substandard and inadequate condition of facilities results in operational inefficiencies, reduced resiliency and reliability, unplanned outages, costly repairs, and elevated safety risks. ESC recommends an additional $200 million to advance new national lab infrastructure upgrades to retire risk to lab operations faster.

The United States must maintain its leadership in science, technology and innovation, and the DOE Office of Science plays a pivotal and leading role in addressing this country's energy, national security, and environmental challenges. For these reasons, we urge Congress to provide at least $8.6 billion for the Office of Science in FY 2025. If additional resources are available, ESC recommends an additional $900 million in FY 2025 in supplemental funding to reserve cuts in core research programs, maximize facility operations, and accelerate construction of research and other mission critical infrastructure. We look forward to working with you in advancing the critical missions of this invaluable agency.

Sincerely,

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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.