



**ASME Energy Public Policy Task Force Statement on
U.S. Department of Energy FY 2021 Budget Request
March 30, 2020**

The American Society of Mechanical Engineers (ASME) Energy Public Policy Task Force (Task Force) of ASME's Committee on Government Relations is pleased to provide feedback on the Administration's Fiscal Year 2021 (FY21) budget request for Research and Development (R&D) programs in the Department of Energy (DOE). The Task Force commends Congress for continuing its strong, bipartisan support for R&D programming within the U.S. Department of Energy in the FY20 appropriations bill. By providing real, above inflation growth in R&D funding levels over the FY 2019 enacted funding level, Congress demonstrated appreciation for the role that energy innovation must play in enhancing our energy security and strengthening the U.S. economy.

ASME has long advocated for maintenance of a balanced portfolio of energy technologies to meet the nation's growing energy needs in an environmentally sustainable way. ASME also supports utilization of energy efficient building and transportation technologies, as well as transmission and distribution infrastructure sufficient to satisfy national demand under reasonably foreseeable contingencies. The DOE's R&D program portfolio provides the only or primary source of independent and unbiased energy research across a wide range of topics affecting the power/energy/environmental community. A balanced energy portfolio will allow the U.S. to maintain its quality of life while addressing our environmental and security challenges. Sustained growth in the energy systems on which the U.S. depends will also require stability in licensing and permitting processes not only for power generating stations but also for energy supply systems, and transmission and transportation systems.

To maintain a funding trajectory that ensures continued support for groundbreaking scientific discoveries, as well as the construction and operation of world-class scientific facilities, the Task Force urges Congress to again provide **strong, above inflation growth funding for the Department of Energy's R&D activities in FY 2021.**

Office of Energy Efficiency and Renewable Energy (EERE)

EERE's mission is to create and sustain American leadership in the transition to a global clean energy economy. In addition to funding research to advance renewable energy technologies, EERE works to accelerate the development and adoption of sustainable transportation technologies, improve energy efficiency, modernize the electric grid, and stimulate clean energy manufacturing in the U.S. The Task Force commends Congress for providing \$2.84 billion for EERE in FY20, including strong funding for the Advanced Manufacturing Office (AMO), and DOE's Wind and Solar Research programs, and encourages Congress to continue this commitment to a cleaner energy future in FY 2021.

EERE's Advanced Manufacturing Office (AMO) aims to improve the energy efficiency and productivity of the U.S. manufacturing sector by bringing together industry and research institutions to tackle cross-cutting sectoral challenges. The AMO provides valuable RD&D funding support and technical assistance through competitive, merit reviewed funding opportunities designed to investigate processes, information, and materials technologies around high-impact energy-related manufacturing technologies. The Task Force strongly supports DOE's investments in this area, particularly in the areas of materials, process engineering, additive manufacturing, and smart grid, and for DOE's support of the Manufacturing USA Institute program.

Office of Electricity

The Office of Electricity (OE) leads the Department's efforts to strengthen, transform, and improve energy infrastructure so that consumers have access to secure and resilient sources of electricity. The integration of all cost-effective electric generating and storage technologies into the operation of the electricity distribution system is critical to economic operation of the national electric grid. The Task Force believes that R&D related to the integration of the electric grid and its control as a truly national system is imperative for the growth of effective and economic energy generation technologies and we encourage full funding for such research. We urge Congress to strive for full funding for each of these strategic investment areas and to strongly encourage continued inter-office and inter-departmental coordination, as OE's programmatic area of responsibility has a natural connection to the mission of every other DOE Office.

Cybersecurity, Energy Security, and Emergency Response (CESER)

CESER programs work to enhance the resilience and security of the U.S. energy infrastructure. Reliable, resilient, and secure energy infrastructure is critical to U.S. economic competitiveness, innovation, and leadership. The Task Force supports the Administration's requested \$184 million for Cybersecurity for Energy Delivery Systems and Infrastructure Security and Energy Restoration in FY21.

Office of Nuclear Energy

Nuclear Energy (NE) supports the diverse civilian nuclear energy programs of the U.S. Government, Federal efforts to research and develop nuclear energy technologies, including generation, safety, and security technologies, to assist in unleashing an era of energy dominance through strategic support for innovation. The Task Force remains convinced that nuclear energy holds an important role in the nation's energy future. Lack of funding for this type of research in nuclear energy may adversely impact the ability of the current US reactor fleet to continue to operate past its 60-year life. The loss of funding may also contribute to the loss of the US nuclear technology competitive edge in developing the nuclear technologies of the future. The Task Force encourages Congress to provide strong funding for NE programs in FY 2021. The Task Force supports the Administration's requested \$1.49 billion for NE in FY 2021.

Office of Fossil Energy

The mission of the Fossil Energy Research and Development (FER&D) program is to support the clean, efficient, affordable and sustainable use of our domestic fossil energy resources through basic and applied research, development, and deployment of coal and petroleum utilization technologies. Coal is, and will remain, a critical resource for our nation and the global economy for the foreseeable future. As the coal fleet decreases, the remaining fleet must be maintained and improved through R&D efforts to improve efficiency and reduce maintenance costs. Natural gas, a critical fuel source, must meet the same emission reduction challenges as coal.

In order to reduce the environmental impacts of carbon emissions and maintain our global leadership in fossil energy technologies, a higher level of investment is required than the much-appreciated budget of \$750 million provided in FY 2020. Federal funding is necessary as cost-sharing to support CCUS demonstration projects that shorten the time for commercialization of new technologies. Additional support is also recommended for university training and research, workforce development, product fabrication and CO2 utilization, and carbon removal. We further recommend increasing coordination between the Advanced Research Projects Agency – Energy (ARPA-E) and FE programs to ensure the development of newer technologies that can further decarbonize our energy sector to

take advantage of our nation's abundant resources. The Task Force recommends an appropriation of \$858 million for FY 2021 to advance these initiatives.

Advanced Research Projects Agency-Energy (ARPA-E)

A steady commitment to ARPA-E has already begun to encourage new energy technology innovation in the U.S. According to their most recent annual report, 71 project teams have formed new companies, 109 projects have partnered with other government agencies for further development, and 136 projects have attracted over \$2.6 billion in private-sector follow-on funding. The Task Force believes that this is a worthwhile endeavor for the DOE as we seek to accomplish technological breakthroughs in energy technology and speed the translation of new technologies into the marketplace. The Task Force recommends continuation of the ARPA-E Program at a level of \$450 million in FY 2021.

DOE Office of Science

As the nation's primary sponsor of physical sciences research, the DOE Office of Science plays a major role in the American science and engineering enterprise. The Task Force recommends at least **\$7.4 billion for the Office of Science in FY 2021**. This level of funding would enable Office of Science to support a diverse portfolio of research at DOE's 17 national laboratories and at colleges and universities nationwide - supporting approximately 22,000 Ph.D. scientists, engineers, graduate students, undergraduates and technical personnel at more than 300 institutions across all 50 states and the District of Columbia.

DOE-funded research and education programs strengthen our nation's scientific knowledge base and prepare the next generation of scientists and engineers by providing hands-on experience for students. The Task Force urges Congress to expand the successful Office of Science Graduate Fellowship Program to support the best and brightest students from multidisciplinary areas of research, such as quantum information science, in pursuing their advanced degrees.

Energy Information Administration

The DOE's Energy Information Administration (EIA) provides independent and impartial energy information critical to promoting sound policy, efficient markets, and public understanding of energy and environmental issues. The Task Force strongly supports EIA's proposed FY 2021 budget and modernization efforts, which will improve the nation's ability to identify and address key energy and environmental trends with high quality, unbiased data.

Conclusion

Members of the Task Force consider the issues related to energy to be some of the most important facing our nation. There is an urgent need for more coherent and consistent national energy policies to encourage adoption of cleaner and more energy efficient technologies. The Task Force recommends adoption of a broad-based, bipartisan national energy vision to provide an outline for the future that reflects our values as a nation, identifies the greatest challenges and opportunities in energy that must be addressed, and guides future policy decisions related to key energy challenges. Such a vision can help ensure that investments in research will be made that grow and strengthen our energy and innovation future domestically and our competitiveness and leadership globally.

We applaud Congress for their understanding of the important role that scientific and engineering breakthroughs will play in meeting our energy challenges and competing in the industries of the future. To promote such innovation, strong support for energy research will be necessary across a broad range of technology options. DOE research can play a critical role in allowing the U.S. to use our current resources more effectively and to create more advanced energy technologies.

As the world increases reliance on variable renewable energy sources, it remains important to have readily available, base-loaded generation, is a key component in our generation mix. The U.S. generation system needs to have the flexibility to adjust to extreme weather events such as polar vortex, hurricanes, droughts, and other localized issues (e.g., power outages). To maintain economic leadership, the U.S. requires an electric power system that is energy independent of international tensions, with a cost that promotes economic growth. We recommend the DOE conduct research and development focused on developing a balanced energy policy that considers the environment, economics, regional needs, security of supply, and system capacity requirements in meeting our nation's future energy needs.

Thank you for the opportunity to offer testimony regarding both the R&D and other parts of the proposed budget for the DOE. The Task Force is pleased to respond to requests for additional information or perspectives on other aspects of our nation's energy programs.
