August 5, 2019

The Honorable Richard Shelby
Chairman
Senate Committee on Appropriations
Washington, DC 20510

The Honorable Patrick Leahy
Ranking Member
Senate Committee on Appropriations
Washington, DC 20510

The Honorable Lamar Alexander
Chairman
Senate Energy & Water Subcommittee
Washington, DC 20510

The Honorable Dianne Feinstein
Ranking Member
Senate Energy & Water Subcommittee
Washington, DC 20510

Dear Chairman Alexander and Ranking Member Feinstein,

As the Senate Energy and Water Appropriations Subcommittee finalizes the Senate Fiscal Year 2020 (FY20) bill, I write to highlight priorities for the Department of Energy (DOE) that we encourage you consider including. Energy innovation reduces emissions by creating cleaner energy solutions, and it has a significant impact on our economic growth and security. We urge the Committee to fully support critical energy research and development programs at DOE. These programs are key to leveraging America's unique competitive advantages in an increasingly competitive global marketplace.

Below are DOE priorities we ask you consider:

- **ARPA-E.** The DOE's Advanced Research Projects Agency-Energy (ARPA-E) is an effective energy innovation program that supports high-risk, high-reward research. BPC Action supports the **$428 million** in the House Energy and Water Appropriations bill. In addition, we ask the Committee consider including report language that directs the Department of Energy to disburse funds in a reasonable timeframe. This is crucial, since a 2017 GAO report found OMB withheld more than $91 million in congressionally appropriated funds.

  Report language requested: The Department is directed to disburse funds appropriated for ARPA-E on eligible projects within a reasonable time period, consistent with past practices.

- **Direct Air Capture**. Analyses by the Intergovernmental Panel on Climate Change (IPCC) and the National Academies of Sciences, Engineering, and Medicine (NASEM) highlight the importance of carbon dioxide removal in a technologically-inclusive emissions reduction strategy. However, the United States does not have a dedicated research program for carbon dioxide removal. The NASEM report recommends ambitious levels of federal research investment to drive advances in carbon dioxide removal technologies and processes, including $60 million for basic and applied research, development, and demonstration projects for direct air capture in the first year. We firmly support the NASEM-recommended level of $60 million for direct air capture in FY20 and request it be spread evenly ($20 million each) across DOE's Office

of Fossil Energy, Office of Science, and Office of Energy Efficiency and Renewable Energy. **At a minimum, we request not less than $30 million spread evenly across these offices for direct air capture RD&D ($10 million each)** – equivalent to half of the National Academy's recommended funding level. While we support research across each of these offices, funding should be prioritized to offices in this order: 1) CCS and Power Systems in the Office of Fossil Energy; 2) Basic Energy Sciences in the Office of Science; and 3) Advanced Manufacturing in the Office of Energy Efficiency and Renewable Energy.

Report language requested:

Fossil Energy - CCS and Power Systems.--Within funds available for CCS and Power Systems, the Committee recommends a minimum of $10 million to support research, development, and demonstration projects to advance the development and commercialization of direct air capture technologies that capture carbon dioxide from dilute sources, such as the atmosphere, on a significant scale.

Science - Basic Energy Sciences.--Within funds available for Basic Energy Sciences, the Committee recommends a minimum of $10 million to support research projects to advance the development and commercialization of direct air capture technologies that capture carbon dioxide from dilute sources, such as the atmosphere, on a significant scale.

EERE - Advanced Manufacturing.--Within funds available for Advanced Manufacturing, the Committee recommends a minimum of $10 million to support research, development, and demonstration projects to advance the development and commercialization of direct air capture technologies that capture carbon dioxide from dilute sources, such as the atmosphere, on a significant scale.

- **Carbon Capture of Natural Gas**. Carbon capture and storage technology is essential for addressing greenhouse gas emissions. DOE research related to carbon capture has primarily focused on pairing the technology with coal. While these investments should continue, DOE should be given more flexibility to bolster its research and development of natural gas technology with carbon capture. This is particularly important now because natural gas is currently the top producer of U.S. electricity and total natural gas generation its role is expected to grow into mid-century. In FY20, I ask you to empower the Department of Energy to use funds from Coal CCS and Power systems for both coal and natural gas research and development by including the following report language:

  Report language requested: The Department is directed to use funds from Coal CCS and Power Systems for both coal and natural gas research and development as it determines to be merited. Within the funds dedicated to Carbon Capture, not less than $7,000,000 is for carbon capture research for natural gas power systems.

- **<u>Carbon Capture of Industrial Sources</u>**. While years of concerted policy efforts and current market forces have helped increase the deployment of clean energy technologies, emissions from the industrial sector are rising steadily and were the largest contributor to U.S. emissions growth in 2018. In many cases the only way to drastically reduce emissions at an industrial facility is to incorporate carbon capture, use, and storage (CCUS). Unfortunately, DOE's Office of Fossil Energy has no funding dedicated to industrial CCUS. Expanding focus to include advancements in carbon capture specifically for industrial facilities will help the U.S. address these emissions sources, and help manufacturers thrive in a low-carbon economy. In FY19 this critical work in the CCS and Power Systems account was funded at $486.23 million, while the president budget request called for drastic cuts. In FY20, I ask you to maintain this funding level with specific directive to include the following report language:

  Report language requested:
  CCS and Power Systems.--The Committee acknowledges the economic and environmental benefits that could be produced by expanding the scope of carbon capture and carbon utilization research to a wider range of sources.

  Within available funds, the Committee recommends $4,000,000 for research and optimization of carbon capture technologies for use at industrial facilities, which may include developments in process equipment and chemistry, capture of process emissions, and systems integration.

  The Committee recommends continued funding at the fiscal year 2019 enacted level of $12,000,000 for research and development activities to support valuable and innovative uses for Carbon Use and Reuse.

  Within 270 days of enactment of this Act, the Department is directed to provide the Committee with recommendations for program structures that could best support and maximize the impact of expanded research, development, and demonstration efforts in three areas--decarbonization of the industrial sector, direct air capture, and carbon use.

- **<u>Advanced Manufacturing Office</u>**. The Advanced Manufacturing Office (AMO) is actively developing and improving materials and processes related to the use of energy in manufacturing in order to reduce carbon pollution and bolster the competitiveness and efficiency of U.S. industries and businesses. We are particularly supportive of the two energy innovation hubs within AMO, which include the Critical Materials Institute (CMI) and Energy-Water Desalination hubs. In its short lifetime, CMI has developed new material chemistries and inventions that have already entered the market, and it did so in a fraction of the time as conventional development and deployment processes. We ask you to consider including the following report language:

  Report language requested:
  Advanced Manufacturing. -- The committee directs the Advanced Manufacturing Office to develop a series of industry-specific decarbonization roadmaps to guide research and development activities across the Department to achieve significant and economical greenhouse

gas emission reductions by 2050, considering technologies such as energy efficiency, process electrification and carbon capture. Each roadmap shall be developed in consultation with external stakeholders including, but not limited to, private companies, labor organizations, and the Office of Fossil Energy, to identify both technical and business considerations.

The committee notes that industrial emissions of climate warming gases are some of the most difficult to eliminate and encourages the Department to continue its focus on manufacturing energy efficiency and electrification. The agreement provides $20,000,000 for alternatives to fossil fuel-based process heating technologies.

The committee also notes that certain manufacturing processes are not amenable to efficiency improvements or electrification. Reducing emissions from these processes will require the development of industrial carbon capture and sequestration processes and infrastructure, in addition to reductions in the cost of running industrial process using energy produced with low-carbon hydrogen. The agreement provides $20,000,000 for development of transformative processes for industrial CO2 separation and emissions reductions, and the committee directs the Advanced Manufacturing Office to consult with the Office of Fossil Energy as it proceeds with this work. The committee also encourages the Advanced Manufacturing Office to work with the Hydrogen and Fuel Cell Technologies Office on the use of low-carbon hydrogen for industrial processes.

Within available funds, $118,000,000 is for Advanced Manufacturing Research and Development Facilities, of which $28,000,000 is for the two Manufacturing USA Institutes, $25,000,000 is for the Manufacturing Demonstration Facility (MDF) and Carbon Fiber Technology Facility, $20,000,000 is for the Energy-Water Desalination Hub, and $25,000,000 is for the Critical Materials Hub.

The agreement also includes $20,000,000 to accelerate development of manufacturing processes needed for clean energy materials to go from discovery to scale-up with the goal of lowering battery energy storage costs and spurring job creation.

- **Loan Program Office**. The Department of Energy Loan Program Office (LPO) fills a critical energy innovation role by providing financing for technologies that often hold great promise for improving our energy systems, but because capital markets have no experience with them it can be difficult to receive financing for creditworthy projects. We request the committee consider providing at least $18 million in funding, same as FY19 level, for LPO or up to $30 million, which is the amount the House appropriated.

  Report language requested:

  Title 17 Innovative Technology Loan Guarantee Program.--The agreement provides $33,000,000 for administrative expenses for the Title 17 Innovative Technology Loan Guarantee Program. This amount is offset by estimated revenues of $15,000,000, resulting in a net appropriation of

$18,000,000. The Department is encouraged to work with the Office of Management and Budget to process applications in a timely manner and carry out the legislative intent of the Program.

The Department is directed to provide to the Committees on Appropriations of both Houses of Congress not later than 90 days after enactment of this Act a report that includes a list of applicants and the status of each project (i.e., Phase I, Phase II, Diligence or Conditional Commitment). Furthermore, the Department is directed to update the aforementioned list 180 days thereafter to illustrate the progress of the Program's project pipeline.

I commend the Committee for its long-standing commitments to support programs, such as those outlined above, that are vital to American prosperity. The United States is at risk of ceding global leadership in clean energy innovation to other nations at a critical juncture –where increases in global energy demand represent trillions in economic opportunity and carry important security implications. The aforementioned DOE offices and programs are key to boosting the development of new innovative energy technologies and will be critical to our long-term economic growth and competitiveness.

Sincerely,

Michele Stockwell
Executive Director of BPC Action