

Testimony of
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Business Council for Sustainable Energy
United States Senate
Committee on Energy and Natural Resources
Examining the Impacts of COVID-19 on the Energy Industry
June 16, 2020

Chairman Murkowski, Ranking Member Manchin, and Members of the Committee, thank you for the opportunity to testify and to share the Business Council for Sustainable Energy's views on the impacts of COVID-19 on the energy industry.

My name is Lisa Jacobson, and I serve as the President of the Business Council for Sustainable Energy, or BCSE. On behalf of the Council, I would like to express our appreciation for the longstanding bipartisan work of the Senate Committee on Energy and Natural Resources. We commend the Committee for its accomplishments this Congress and look forward to working with its members as it seeks to address pressing federal policy issues impacting the U.S. energy sector in the areas of climate change, energy innovation, grid modernization and resilience, and cyber security.

BCSE is a coalition of companies and trade associations representing the energy efficiency, natural gas and renewable energy sectors. Founded in 1992, the Council advocates for policies that expand the use of commercially available clean energy technologies, products and services. Its membership includes project developers, industrial manufacturers, equipment and technology providers, independent electric power producers, investor-owned utilities, public power companies, and energy and environmental service providers.

BCSE is pleased to have an independent initiative under its banner, the Clean Energy Business Network (CEBN). CEBN represents small- and medium-sized businesses providing clean energy technologies and services.

Together, BCSE and CEBN represent a broad range of the clean energy economy, from Fortune 100 companies to small businesses working in all 50 states. These sectors have been significant growth industries, providing over 3.4 million jobs across the country at the start of 2020, with about 70% of those jobs in small businesses.

Today's hearing is of critical importance, as the COVID-19 health crisis has touched every American. We have tragically lost over 100,000 American lives during this pandemic, and, in an effort to save lives, the nation is taking unprecedented measures to keep individuals and families safe.

The effect of these measures has been to stop or dramatically alter business and social activity in many parts of the country since early March. During this time, the energy sector has performed essential services to society by providing reliable power and energy resources to communities.

These energy services have enabled essential workers, such as healthcare providers and first responders, and critical institutions, such as hospitals and government offices, and also everyday American households to still be able to operate under shelter-in-place policies and other restrictive local ordinances.

In my testimony today, I will underscore four main points:

- The U.S. energy sector performed essential services during the pandemic and will continue to be called upon to do so.
- The U.S. clean energy workforce was expanding pre-COVID-19, and now the sector is facing economic challenges and dramatic job losses.
- The federal government can take actions to provide near-term relief to clean energy industries and workers in this time of crisis.
- And, clean energy industries can be drivers of the economic recovery, and the federal government has a role to play with policy support.

Impacts of COVID-19 on Clean Energy Workers

Clean energy sector employees range from utility, construction, and manufacturing workers, to contractors, installers, and technicians, to building managers and service providers. While some workers have received “essential” status during the pandemic, others – especially workers in the residential sector – have seen their business activity halted or dramatically curtailed.

Many clean energy workers have made significant sacrifices to maintain safe, secure and reliable power and energy services to customers during the pandemic – and they continue to do so. For example, some public and investor-owned utilities, grid operators and manufacturers implemented sequestering policies for their essential employees. These employees often adopted “multiple day on and multiple day off” schedules and were away from family at the height of the pandemic.

Further, the construction of many large-scale energy projects throughout the country continued during March, April and May, with construction workers, electricians and engineers staying on the job. Heating, ventilation, and air conditioning (HVAC) technicians worked to maintain and update critical systems in healthcare, nursing homes and other public facilities to improve ventilation, indoor environmental quality and resilience.

Fuel cell products helped to sustain the resiliency and reliability of the electric utility structure by powering hospitals, datacenters, grocery stores, universities, and thousands of cellphone towers. Further, fuel cell and other clean energy companies are adjusting operations to produce or refurbish critically-needed ventilators and respirators, industrial gas companies are helping to maintain a supply of oxygen and other medical gases for those in need, and suppliers are producing and donating much needed Personal Protective Equipment (PPE).

These contributions had an impact. Our country had the electricity it needed at a scary and uncertain time. The reliability of the power system allowed citizens to stay safely at home, for communities to focus on taking care of the sick and enabled the front lines of the healthcare system, grocery stores and other essential businesses to tackle the pandemic and serve our communities.

In the years preceding the COVID-19 pandemic, BCSE members worked with their customers and clients to make important investments to improve and optimize the electric system, integrate clean and renewable energy, increase energy efficiency and enhance resilience.

While we have much more work to do, these investments demonstrated their value with reliable service, lower energy bills for businesses and families than there would have been, and less stress on the energy

system. Looking ahead, resilience to other disasters – wildfires, hurricanes, droughts, floods, and cyber and other physical threats – are urgently needed. BCSE commends this Committee for its focus in this area.

Economic Impacts of COVID-19 on Clean Energy Sectors

Clean Energy Job Trends

The U.S. energy sector supported 6.8 million jobs at the start of 2020, according to the independent *U.S. Energy and Employment Report* released in March 2020.¹ The energy sector saw 1.8% job growth in 2019. Clean energy sectors supported over 3.4 million jobs at the end of 2019, with around 70% of those jobs in small businesses. Solar photovoltaic installers and wind turbine technicians represented the fastest-growing job sectors in America.²

COVID-19 and the economic restrictions hit all sectors of the U.S. economy. According to the same researchers based on data from March and April 2020, the energy sector lost 1.3 million jobs since early March, a 13% percent decline representing more than the last five years of job growth.³

Updated research released June 15 (which includes data from May) by E2 (Environmental Entrepreneurs), BW Research Partnership, E4TheFuture, and the American Council on Renewable Energy covering the energy efficiency, renewable energy, clean vehicles, grid and storage, and clean fuels sectors shows 620,590 jobs lost, with energy efficiency and renewable energy workers being hardest hit with more than 500,000 job losses (431,800 and 100,000 respectively). While the rate of job loss slowed in May compared to April and March for these clean energy sectors, over 27,000 jobs were shed last month.

These clean energy industries are hit harder than the energy sector as a whole:

- Energy efficiency has lost 18.3% of its workforce since the start of the pandemic. Many of the remaining jobs are supported by Paycheck Protection Program (PPP) loans, as the construction sector has received over 13% of the total support from the PPP. The expiration of the PPP could increase the job losses.
- Renewable energy has lost 16.9% of its workforce.
- Clean vehicles, transmission and distribution, and energy storage saw 18.3% reductions.
- Clean fuels lost 12.6% of their workforce, reporting 13,200 jobs lost during the pandemic.

Many of these losses are due to stay-at-home orders or other restrictions that stopped onsite energy efficiency and renewable energy installations. Further, non-essential construction stopped, and many building and project sites were closed.

In addition, utility clean energy programs across the country have ceased, impacting workers who provide demand-side management, renewable energy, and energy efficiency installations and services.

¹ Please see: <https://www.usenergyjobs.org>

² Please see: <https://www.bls.gov/ooh/fastest-growing.htm>

³ <https://e2.org/wp-content/uploads/2020/05/Clean-Energy-Jobs-April-COVID-19-Memo-FINAL.pdf>

Clean Energy Sector Investment and Business Conditions

In the 2010s, clean energy industries led a decade of transformation of the U.S. energy landscape, with dramatic increases in deployment, investment, and jobs. The outlook for 2020 was strong, with clean energy sectors poised for further expansion. Please see Appendix A for the findings of the 2020 Sustainable Energy in America Factbook that details recent clean energy sector trends.⁴

Since the U.S. escalation of the pandemic in early March, the clean energy project and investment pipeline has been significantly interrupted. Project construction and permitting has been delayed, financing has been slowed, and supply chains have been disrupted.

The economic impact of COVID-19 on the energy sector is being felt around the world. The International Energy Agency (IEA) had projected 2% global growth in energy investment for 2020, before the crisis hit.⁵ Now, the IEA projects global investment to decrease by 20% (\$400 billion) compared to last year. Global shale investment is expected to fall 50%, while clean energy and grid investments may decline on the order of 10-15%. These global numbers reflect significant losses for U.S. energy companies in domestic and international markets.

BCSE has conducted two informal surveys of its members on the economic impact of COVID-19 on their businesses since early March.

The most recent survey was conducted the week of June 8. It identified a range of impacts to safety and operations, employment levels, project pipelines and estimated revenue losses. Overall, economic impacts have increased in severity since the first survey period in late March, but have differed in the details, according to regions of the country and industry sector.

In the first survey and through direct conversations with BCSE members, many companies and sectors were seeking guidance on essential worker and project status. Federal guidance released by the Department of Homeland Security’s Office of Cybersecurity and Infrastructure Security Agency⁶ in mid-March assisted, and the focus then shifted to state and local ordinances.

Understanding how best to protect the safety and health of employees was the primary concern – and remains so. Ability to procure PPE continues to be an issue. Of note, commercial and industrial insulation contractors reported significant difficulty securing PPE nationwide and managing varied requirements at the local level related to safety plans, temperature checks and contact tracing.

Supply chain disruptions were also reported. It was noted that for some manufacturers and projects that were deemed essential, their suppliers have not received similar status, and this is causing challenges.

Most companies have done their best to keep Americans employed, despite the significant job losses noted earlier in this testimony. One member observed that the PPP was “an effective first step in supporting businesses. The changes made recently to the program should increase its value to many small businesses in the construction industry.”

Other companies have instituted furloughs by day, per week or per month, and others have applied across-the-board percentage salary cuts. In the energy storage sector, 25% of companies reported they have already reduced or expect to reduce their workforce in Q2 2020 by up to 20%.

⁴ Please see: www.bcse.org/factbook

⁵ Please see: <https://www.iea.org/news/the-covid-19-crisis-is-causing-the-biggest-fall-in-global-energy-investment-in-history>

⁶ Please see: <https://www.cisa.gov/publication/guidance-essential-critical-infrastructure-workforce>

BCSE members designated as “essential” or whose customers are military or government have experienced less-severe impacts in project and work levels, compared to members that service private homes or commercial operations. For example, around 25% of the U.S. grocery distribution network requires fuel cell-powered forklifts, parts, service, support and hydrogen infrastructure to continue operation, so business demand has remained.

Even when work is permitted, some sectors report delays due to limitations to enter customer premises and the need to make new arrangements for crews to safely travel and to work in confined spaces.

The waste-to-energy sector has reported some compounding challenges, even as its essential services are in high demand. These are facilities that provide renewable energy and solid waste services for local governments, and they face increased financial strain because of COVID-19.

Unlike for other energy generators, the feedstock of these facilities is now infectious, and employee protections (PPE, facility disinfecting, social distancing, etc.) has increased costs. Further, commercial facility closures have resulted in fuel scarcity, leading to curtailments and energy revenue loss.

Both natural gas and electric utilities could face lost revenue as customers may no longer be able to pay their bills. Importantly, utilities have put in place moratoriums on shutoffs to protect customers. But the lost revenue is forecasted to be in the hundreds of millions of dollars in the first half of 2020. In this regard, we wish to thank the Committee for its strong support of funding for the Low Income Home Energy Assistance Program (LIHEAP) to ensure safe and reliable energy to vulnerable children, families, and communities.

Like other American business sectors, some fuel cell companies have reduced operations or shut down manufacturing lines, while facing supply chain uncertainty and a volatile economic market.

According to the *U.S. Solar Market Insight Q2 2020 report*,⁷ released on June 12 by the Solar Energy Industries Association (SEIA) and Wood Mackenzie, the coronavirus pandemic is having a significant impact on the U.S. solar industry. Construction has been delayed, customer purchases have wavered, and access to financing for projects of all sizes has been jeopardized. SEIA separately reports that 72,000 solar jobs have been lost during the pandemic.

Forecasts show that the second quarter of 2020 will show a steep drop off. As a result, in 2020, the residential and non-residential solar markets will see decreases in year-over-year installation volumes of 25% and 38%, respectively, as the segments face challenges posed by work stoppages, permitting delays and drops in consumer demand. Distributed markets will see a combined 32% less solar installed in 2020 than was forecast before the pandemic.

Federal Policy Support for Clean Energy Industries in Response to COVID-19 Business Conditions

The scale and breadth of the economic impacts that clean energy industries are facing is wide and deep. Given the diversity of products, services and business models in clean energy sectors, a range of policy solutions are being considered. As a diverse coalition, not all BCSE members endorse or take positions on the policies described in this section.

The types of federal solutions being contemplated involve support to states, localities and tribes; adjustments to tax policy; regulatory changes; and funding for research, development and deployment

⁷ Please see: <https://www.seia.org/us-solar-market-insight>

(RD&D) initiatives, among other proposals. The objectives are to provide market stability in this uncertain period and to spur investment and jobs for economic recovery when the time is right.

Policies to Provide Relief and Business Continuity

Modifications to current law and utilization of existing authorities and programs can have near-term impacts. As an example, the federal government took an important step to provide immediate relief to the renewable energy sector in May when the Internal Revenue Service provided continuity safe harbor relief to accommodate COVID-19 delays for projects eligible for the Investment Tax Credit (ITC) and the Production Tax Credit (PTC).

I wish to thank Chairman Murkowski, Ranking Member Manchin, Senator Wyden, Senator Cantwell and other members of this Committee for urging the Treasury Department to act. Of note, this type of action is needed with longer-term parameters to support the deployment of offshore wind and other technologies that have a longer project cycle.

There are other adjustments to current law that would provide market continuity and enable the tax incentives on the books to be utilized.

Ideas being discussed by a number of BCSE members include:

- Direct pay mechanisms for the ITC and PTC to make the tax provisions refundable.
- Expansion of eligibility and delaying the phase-downs for clean energy tax measures.
 - This could impact energy storage, carbon capture utilization and storage, and sustainable transportation, in addition to PTC and ITC technologies.
- Changes to net operating loss (NOL) monetization timelines to allow start-ups to monetize their existing tax assets like NOLs to provide liquidity through the crisis.

Policies to Jump Start Economic Recovery

Looking to economic recovery, RD&D, tax, and appropriations policies to support infrastructure investment and public-private partnerships (P3s) are also of interest. Please see Appendix B for a submission that BCSE made in April 2020 on policy proposals for congressional consideration in response to COVID-19.

The following is a small sample of policies that Congress should consider to support clean energy sectors as the economy recovers.

- BCSE members urge action on the American Energy Innovation Act (AEIA) this year as a foundational set of policies with strong bipartisan support that will spur investment and create jobs.
 - The AEIA is a process-driven, consensus-based piece of legislation that includes more than 50 energy-related bills reported on a bipartisan basis by the Senate Committee on Energy and Natural Resources. It includes a range of RD&D initiatives to deploy current technologies and invest in innovative technologies.
- BCSE members also recommend support to states, localities and tribes to manage current cost shortfalls as well as to strategically invest in clean energy sectors and resilience. This can be

accomplished through federal appropriations, grant programs and other financial mechanisms. An important goal with these expenditures is to leverage private sector investment as much as possible.

- The *Mission Critical Facility Renewal Program*⁸ is an example of an economic recovery proposal that would leverage federal grant funding with private sector capital to put energy efficiency workers back on the job providing upgrades to schools, hospitals, military bases and other mission-critical buildings.
- In addition, expansion of federal RD&D initiatives under the Department of Energy’s (DOE) Office of Energy Efficiency and Renewable Energy (EERE), Office of Electricity (OE), Office of Fossil Energy (FE), Office of Electricity Delivery and Energy Reliability (EDER), Advanced Research Projects Agency – Energy (ARPA-E), Office of Advanced Manufacturing (OAM) and Loan Programs Office (LPO), among others can support P3s.
- Further, Congress should invest in bolstering U.S. research and manufacturing capabilities and improving small business access to these resources. BCSE’s small business subsidiary, CEBN, has provided several recommendations to this effect.⁹
- When considering federal buildings, there are opportunities to support new construction and renovation aimed at achieving high performing federal buildings and meeting goals for efficiency, net zero energy, and EV charging.
- Looking at the tax code, a number of measures could be implemented to incentivize resilient infrastructure, transmission upgrades, microgrids, renewable energy, energy efficiency and other clean energy investments.
 - In early June, over 800 contractors and manufacturers signed a letter to urge Congress to improve and expand the current Section 25C tax credit for homeowner energy efficiency improvements.¹⁰ Based on past performance, when set at the right level, the 25C tax credit was successful in putting contractors and manufacturers in this industry back to work while making home improvements that lower homeowners’ heating and cooling bills, improve home comfort and address important environmental objectives.
 - Additionally, extend and improving the 179D energy efficient commercial building tax deduction, which expires in 2020 is of interest. Updating the deduction in terms of both its value and the required energy efficiency achievement will reinvigorate this incentive to drive private sector investment in building retrofits.

These are just a few of many tax proposals that clean energy sectors are considering to put people back to work and “build back better.”

Conclusion

A safe, resilient and reliable energy system is critical to managing the current health crisis and rebounding the economy when the time is right. While clean energy industries have experienced economic hardship as a result of business conditions caused by the COVID-19 pandemic, they have contributed to the resilience of our communities during this difficult time, and will be there to help lead a robust economic recovery. The federal government can provide immediate relief to clean energy industries in the short-

⁸ Please see: https://www.ase.org/sites/ase.org/files/alliance_right_retrofits_proposal_040820.pdf

⁹ <https://www.cebn.org/wp-content/uploads/CEBN-Letter-to-HSST-on-COVID-19-Reponse-04.13.20.pdf>

¹⁰ Please see: https://www.ase.org/sites/ase.org/files/ee-tax_incentive-25c-letter-6320.pdf

term to provide business continuity and can enact policy measures that catalyze investment and create jobs in clean energy industries to support economic renewal.

APPENDIX A

The U.S. Energy Transformation: 2010 to 2019

To provide additional context for the policy perspectives offered in my testimony, I will present some of the findings of the [2020 Sustainable Energy in America Factbook](#). The *Factbook* is a report produced by the Business Council for Sustainable Energy and Bloomberg New Energy Finance. Now in its eighth year, the report details the significant transformation of our nation’s energy sector.¹¹ The 2020 edition was released in February and provides both a 10-year retrospective for 2010-2019 as well as year-on-year changes from 2018 and 2019. A complementary compendium from CEBN entitled [Faces Behind the Facts](#) highlights some of the small to medium-sized clean energy entrepreneurs who are helping to drive this transformation.

The 2010s was a rapid period of change in the energy sector, and particularly for the portfolio of energy efficiency, natural gas and renewable energy. This clean energy portfolio represented the growth sectors of the U.S. energy economy; it supplied more than half of U.S. electricity and employed over 3.2 million American workers.

During this period of energy transformation, the U.S. economy experienced sustained economic growth, falling greenhouse gas emissions and low energy costs for consumers. Other key characteristics of this period include the ability of the U.S. economy to do more with less energy and a clear decoupling of GDP growth with energy use. Further, in the 2010s, renewable energy and energy-smart technologies expanded and attracted \$390 billion in investment, with a record-breaking \$55 billion in investment in 2019 alone. Additional findings from the *2020 Factbook* include:

- **Clean energy is now driving the U.S. energy sector.** Sustainable energy meets and exceeds America’s needs for maintaining grid reliability and safety, while boosting economic growth and reducing environmental impacts.
- **Today the cheapest energy is also the cleanest.** Retail electricity costs fell, while consumers have the same services and, in some cases, more options. Consumers are now spending 22% less on energy, on average, compared to the start of the decade.
- **Energy efficiency choices have proliferated,** with federal programs helping high-efficiency appliances reach mass markets, and state codes bolstering building efficiency.
- **The economy grew every year in the past decade, and energy use fell in 5 of the 10 years.** U.S. energy productivity (GDP/energy consumption) improved 18% between 2010 and 2019, benefiting businesses and households.
- **Renewable energy became the cheapest new generation source in many U.S. power markets.** The U.S. has over two times more renewable power generating capacity today than a decade ago. The portfolio of renewable energy technologies – biomass, biogas, geothermal, hydropower, solar, waste-to-energy and wind – now provide 18% of U.S. electricity, up from 11% at the start of the decade.
- **Between 2010 and 2019, domestic natural gas production jumped 50%,** and natural gas went from providing 24% of the nation’s electricity to 38%. The U.S. increased its export capacity to

¹¹ <https://www.bcse.org/factbook>

exceed its import capacity, building stronger trade relationships around the world. In 2019, the U.S. exported more gas than it imported. Further, the number of residential natural gas customers grew 8% in the last decade while overall residential consumption of gas rose 5% due to energy efficiency.

APPENDIX B

BCSE Submission to the House Committee on Science, Space and Technology
April 16, 2020



April 16, 2020

The Honorable Eddie Bernice Johnson, Chair
House Committee on Science, Space, and Technology
Technology
2306 Rayburn House Office Building
Washington, DC 20510

The Honorable Frank Lucas, Ranking Member
House Committee on Science, Space, and
Technology
2405 Rayburn House Office Building
Washington, DC 20515

The Honorable Lizzie Fletcher, Chair
Subcommittee on Energy
1224 Longworth House Office Building
Washington, DC 20510

The Honorable Randy Weber, Ranking Member
Subcommittee on Energy
107 Cannon House Office Building
Washington, DC 20510

Dear Chairwomen Johnson and Fletcher, and Ranking Members Lucas and Weber:

I am writing on behalf of members of the [Business Council for Sustainable Energy \(BCSE\)](#) to share a preliminary set of recommendations to address and mitigate the impacts of the current COVID-19 crisis. These ideas were collected from the BCSE's members in the energy efficiency, energy storage, natural gas, renewable energy and sustainable transportation sectors for consideration by the House Committee on Science, Space, and Technology.

The COVID-19 pandemic has created unprecedented economic uncertainty in the United States. The American experience over the past decade shows that clean energy sectors have generated millions of jobs and contributed significant economic development benefits to the country. BCSE members look forward to resuming this growth position and returning to commercial activity that will support American workers and the economy in the coming months.

The BCSE recommendations below are focused on innovation, research, development, demonstration and deployment of clean energy technologies, products and services and are intended to help American clean energy sectors address business disruptions, as well as assist with economic recovery.

These ideas are centered around the view that *energy infrastructure is essential infrastructure*. Energy infrastructure supports our nation's first responders and healthcare systems, critical supply chain distribution networks, and community centers, businesses and homes. It is critical to maintain and

improve our energy infrastructure assets not only in response to the COVID-19 pandemic, but also to prepare for future disruptive events. This is especially important when energy infrastructure assets provide additional secondary essential services.

The following sections explore recommendations for COVID-19 economic stimulus and relief policies, which in some cases may fall under multiple jurisdictions, including the House Committee on Science, Space, and Technology; the House Committee on Energy and Commerce; and the House Committee on Transportation and Infrastructure. Please see the following areas of focus:

- [Organizing Principles and Objectives for Policy Recommendations](#)
- [Legislative Tools for Improving and Modernizing American Energy Systems](#): Existing energy legislation proposals, grid modernization and resilience infrastructure grants; research, development and deployment (RD&D) funding; public-private partnerships and financing mechanisms; and support for U.S. manufacturing and workforce development.
- [Expanded Funding for the U.S. State Energy Program](#)
- [Industry Priorities](#): Biomass/Waste-to-Energy, Energy Efficiency, Energy Storage, Hydropower, Natural Gas, Solar Energy, Sustainable Transportation, Wind Energy
- [Support for Small Business in the Energy Sector](#): Regulatory Relief Measures, Program Reforms and Funding Opportunities
- [Next Steps and Areas for Discussion](#)

Please note that this is a preliminary list of recommendations and that not all BCSE members endorse or take positions on all of the recommendations listed below.

Organizing Principles and Objectives for Policy Recommendations

The BCSE offers the following recommendations with three primary objectives in mind:

- Helping people get back to work
- Providing business and investment continuity
- Catalyzing investment in energy, building and transportation infrastructure to ensure a modern and resilient energy system.

Understanding the urgency of action on legislation to help the U.S. economy recover and to stimulate investment and job creation, the BCSE offers policy ideas that **utilize existing authorities and enable the expansion of existing programs as much as possible.**

In addition, the BCSE seeks to highlight legislation that has been reviewed and received broad support from Committees of Jurisdiction and Members of Congress.

Areas of focus include grants to states that can be administered under existing programs, as well as expansion of federal RD&D initiatives under the Department of Energy’s (DOE) Office of Energy Efficiency and Renewable Energy (EERE), Office of Electricity (OE), Office of Fossil Energy (FE), Office of Electricity Delivery and Energy Reliability (EDER), Advanced Research Projects Agency – Energy (ARPA-E), Office of Advanced Manufacturing (OAM) and Loan Programs Office (LPO).

Legislative Tools for Improving and Modernizing American Energy Systems

The BCSE believes that the following legislative tools will help achieve post-COVID-19 national economic recovery and the modernization of U.S. energy infrastructure. These tools include: [existing energy legislation proposals](#); [energy efficiency, grid modernization and resilience infrastructure grants](#); [research, development and deployment \(RD&D\) funding](#); [public-private partnerships and financing mechanisms](#); [support for U.S. manufacturing](#); and [workforce development](#).

Existing Energy Legislation Proposals

The BCSE calls for Congress to **consider the legislative proposals included in S. 2657, the American Energy Innovation Act (AEIA)**:

- The AEIA is a process-driven, consensus-based piece of legislation that includes more than 50 energy-related bills reported on a bipartisan basis by the Senate Committee on Energy and Natural Resources. Consideration of the proposals included in the AEIA should serve as a foundation for the House Committee on Science, Space, and Technology as it looks to address the economic impacts of the COVID-19 pandemic.

Energy Efficiency, Grid Modernization and Resilience Infrastructure Investments

The BCSE recommends the **expansion of energy efficiency, grid modernization and resilience infrastructure** initiatives that will utilize a combination of grants and private sector leverage mechanisms to catalyze new investments. These programs can be administered at the state level for a range of purposes.

- Provide \$6 billion in funding over two years to create a [Small Business Energy Efficiency Grant Program](#) for federal matching funds to support electric and natural gas demand-side management programs addressing the small business sector (retail stores, restaurants, etc.).
 - This program is intended to quickly drive federal matching funds into local communities to put energy efficiency construction workers back to work by incentivizing projects in the small business sector, while delivering long-term savings to small businesses.
- Provide \$22 billion in funding over five years to support retrofits in critical public facilities with the establishment of a [Critical Facility Infrastructure Renewal Program](#). This would allow the rapid transformation of unoccupied spaces to support public health and other emergencies, while improving facility efficiency and resilience, and adaptability for future crises.
 - U.S. public buildings – military, municipal, state, university, school, hospital and national lab buildings, among others – are critical infrastructure that enable federal, state and local governments to fulfill their missions. Over many years, this mission-critical infrastructure has been allowed to decay, building up a deferred maintenance backlog that is estimated to be more than \$1 trillion.
 - A systematic approach to renewing public facilities should be an integral element of the economic recovery from the COVID-19 pandemic. This is a proposal for federal appropriations of \$22 billion over five years through the Department of Energy’s State Energy Program (SEP) to leverage private investment through public-private partnerships (P3), performance-based contracts, energy-as-a-service and other financial vehicles. Leveraged with private financing at a 4:1 ratio, this \$22 billion federal investment will deliver

\$110 billion of infrastructure improvements. Federal funds would be reserved for health and safety, resiliency, information technology (IT) infrastructure, cybersecurity and emergency response capabilities, while private funding would be leveraged to deliver efficiency and smart building technology improvements paid over time through energy and operational savings. The federal investment is to be allocated as follows:

- \$18 billion for state/local, K-12, university/college and healthcare buildings by funding the State Energy Program over five years;
- \$2.5 billion for federal buildings by funding the Federal Energy Efficiency Fund (AFFECT), the U.S. Departments of Army, Navy and Air Force at \$500 million each, and the U.S. Department of Veteran’s Affairs and General Service at \$250 million each over four years;
- \$1.5 billion for public housing.
- Provide \$3 billion for improved resilience and energy efficiency in the residential and commercial sectors for both electricity and natural gas. Funded through the State Energy Program, grants could be used for on-site solar, battery back-up systems for on-site storage, on-site gas back-up systems (generators), and energy-efficient equipment for heating, cooling and hot water. The program could be implemented quickly and be administered by utilities or coordinated with them in each state.

The programs highlighted above would provide direct economic impacts for consumers, equipment suppliers and a range of energy sector workers. Further, these programs would enable critical facilities as well as commercial and residential sectors to upgrade and utilize a range of technologies, including combined heat and power systems for reliable energy and heating, as well as provide opportunities for port modernization and resilience.

Of note, Congress should also look for mechanisms to remove barriers to local government microgrids or net metering power from municipal infrastructure, which provides essential services in addition to energy generation to other municipal infrastructure.

Research, Development and Deployment (RD&D) Funding

The BCSE recommends that Congress **expand U.S. Department of Energy (DOE) Applied Research pilots and demonstrations**, and provide:

- \$5 billion for technology deployment, pilots and demonstrations across all DOE Applied Research Programs (EERE, FE, NE, ARPA-E and OE). This funding addresses the “valley of death” issue with bringing more technologies to the market and de-risking newer, more efficient and environmentally sustainable solutions. All DOE applied programs currently have programs for pilots and demonstrations that could be utilized to speed implementation.
 - This funding is important because the scaling up of technologies would positively affect construction and manufacturing bases, providing immediate job benefits. Successful completion of these programs would also lead to increased manufacturing and construction opportunities in commercial deployment, as these technologies hit the market.
 - This should consider including funding for public-private partnership (P3) pilot projects, including opportunities for municipal utilities that own infrastructure that provides multiple community services.

Public-Private Partnerships and Financing Mechanisms

The BCSE recommends that Congress deploy the broad utilization of public-private partnerships (P3s) and finance tools such as Energy Savings Performance Contracts (ESPCs) to aid in the economic recovery. Using these mechanisms leverages public finance and can deliver **five times as much investment** as federal appropriations.

For example, the JFK P3 modernization and transformation project totals \$12 billion, with the state government contributing \$1 billion of the total – an 11x multiple. There are many types of P3s available, from full finance-build-operate-maintenance, to more targeted energy savings/resiliency solutions like a power purchase agreement, energy-as-a-service, performance contracting, etc. All P3 models should be eligible for stimulus-funded projects, with emphasis on P3 projects that can be constructed and commissioned quickly.

- **Provide Funding for States** to establish state revolving loan funds for state and local public facility energy and water efficiency retrofits to lower utility costs for taxpayers, make public facilities (e.g., health care, schools, water treatment, safety) more energy efficient, build community microgrids and leverage private financing for rapid job creation. Section 125 of the Energy Policy Act of 2005, reauthorized as part of the Kelly bill (H.R. 2119) in the House this session, could be the basis. This program could be modeled after the long-successful Texas Loan Star Program and similar state programs that combine Energy Savings Performance Contracting with low-cost revolving loan funds repaid from utility bill savings.
- **Provide Funding to Renovate America’s Schools:** Fund LIFT Act Section 32601 for renovating public schools. These funds should primarily be used to leverage existing state efforts as well as private sector financing and expertise, and to provide technical assistance to school districts with limited capacity to ensure equity.
- **State Energy Efficient Appliance and Insulation Rebate Program** during the American Recovery and Reinvestment Act delivered rapid assistance to homeowners that drove purchases of new, efficient HVAC equipment, room air conditioners, hot water heaters, refrigerators, etc. DOE provided \$300 million to states to establish rebate programs offering immediate help to consumers (especially where the equipment was not functioning) and drove a wave of manufacturing to put people back to work. States’ (and DOE) success at deploying this program rapidly and at very low administrative costs are well documented. Adding building insulation to the appliance rebates would offer great homeowner value and drive job creation in the building trades and insulation manufacturing sectors. This could be dramatically expanded to \$3 billion. (<https://www.energy.gov/eere/buildings/state-energy-efficient-appliance-rebate-program>)

Support for U.S. Manufacturing

Many industrial and critical power facilities today are operating on their original electrical systems, which are often more than 30 years old, unreliable, inefficient, prone to safety risk and unable to take advantage of new opportunities provided by modern electrical distribution, digital tools and cloud-enabled connectivity. Maintaining the United States’ competitive edge depends not only on our RD&D, but on our ability to manufacture in modern, efficient factories. With this goal in mind, the BCSE recommends that Congress:

- Direct the DOE to partner with manufacturers to provide technical assistance and auditing for electrical upgrades and energy efficiency, via existing DOE industrial hubs, and the use of digital tools in factories.
 - Provide \$40 million per year for three years for Industrial Assessment Centers (IACs), located at universities and colleges, to work with small and medium-sized businesses. IACs can implement auditing and work with businesses to implement projects via loans under Community Development Finance Institutions (see below).
 - Provide \$20 million per year for three years to expand the current Better Plants Program to rapidly create a team of federal experts to advise manufacturing facilities on efficiency upgrades, utilizing the model of the Save Energy Now program. Funding would mobilize “SWAT” teams of DOE staff, Industrial Assessment Center staff, contract experts and national lab staff to work with plant staff to implement energy efficiency savings and strategic energy management systems at the plants, and train plant staff in energy efficiency and carbon reduction technologies and programs. This program would coordinate with state and utility programs to leverage this expertise and to provide incentives to expand the impact of their work. This can be implemented through revolving loans.
 - For three years, provide half of the salary for new energy managers at plants to significantly increase capacity. It is shown that facilities with energy managers achieve approximately 10% energy cost savings annually over facilities without managers.
- To help small and medium-sized manufacturers, provide additional credit enhancements for Community Development Finance Institutions for bonding authority guarantees for industrial investments specifically. This will allow credit enhancements through existing lenders with whom the manufacturing firms already have relationships, which will leverage significant action to implement the energy savings.
- Establish a revolving loan program for manufacturers to access capital to upgrade their critical systems. Such a program would allow a facility to “level up” its advanced manufacturing capabilities, including the use of digital tools, full integration and efficiency.

Workforce Development

- Enhance and expand existing programs that provide training and certifications for energy sector workers, including consideration of the Blue Collar to Green Collar Jobs Development Act (H.R. 1315).

Expanded Funding for the U.S. State Energy Program

During the 2008 recession, the U.S. State Energy Program received supplemental funding of \$3.1 billion, which was utilized by states for rapid economic recovery programs and projects aimed squarely at creating energy-related jobs.

The BCSE recommends that similar funding levels be provided to states via the State Energy Program, with congressional direction, to address COVID-19 impacts. Governors, via state energy directors, would make final determinations about specific program details and levels of funding in the relevant sectors. In considering this action, Congress should:

- Provide statutory adjustments to promote flexibility in the Weatherization Assistance Program (WAP) and to preserve the weatherization workforce by:
 1. Increasing the average cost per unit (ACPU) for the current grant cycle (including 2020).
 2. Providing authority for the Secretary of Energy to adjust or waive the ACPU in times of emergency, disaster, pandemic or economic crisis.
 3. Increasing the allowable administrative costs percentage from 10% to 15%.
 4. Changing the date for re-weatherization to “15-year rolling.”
 5. Doubling the cost cap for solar to incentivize solar training, and building organizational capacity for future solar installs while production is shut down.
- Reauthorize and expand the Energy Efficiency and Conservation Block Grant (EECBG) Program (H.R. 2088).
- Provide supplemental funding of \$45 million for the DOE Office of Cybersecurity, Energy Security, and Emergency Response (CESER) to offer grants to states, and funding of \$5 million for the DOE to provide assistance to states, local governments and tribal governments.
- Create transportation innovation grants (S. 1939).

Industry Priorities: Biomass/Waste-to-Energy, Energy Efficiency, Energy Storage, Hydropower, Natural Gas, Solar Energy, Sustainable Transportation, Wind Energy

The BCSE also offers the following industry-specific policy priorities, calling for the increase of funding for existing DOE programs and mechanisms. These actions will quickly disperse funding and enable efficient execution of funds as well as provide much-needed investment to support critical sectors of the U.S. economy.

Biomass/Waste-to-Energy

Biomass and waste-to-energy facilities are essential services. Waste-to-energy plants in particular have been dramatically impacted during the COVID-19 pandemic. These plants are required to operate while simultaneously facing a feedstock that is both more challenging to handle due to the COVID-19 outbreak and increasingly scarce, as large volumes of waste are no longer being generated as businesses, schools and manufacturers have closed. Further, the cost of protecting frontline essential service employees has become more expensive.

As such, to maintain the economic viability of these plants in this current circumstance as well as to make them available for any future public emergency, Congress should consider expanding RD&D funding to reduce operating costs and plant building costs. Further, Congress should consider policies and funding, as appropriate, to local governments that own waste-to-energy facilities to help them offset operating costs and overcome barriers to microgrids or net metering. These actions would increase resilience and improve plant economics so tax dollars can be freed up for other critical needs.

In addition, biomass and waste-to-energy both provide renewable energy that is eligible to meet Renewable Fuel Standard (RFS) requirements for transportation purposes. However, guidance from the U.S. Environmental Protection Agency (EPA) is pending to implement this critical pathway. Implementing this pathway and processing applications from biomass and waste-to-energy producers would assist plants that are challenged by declining revenue from the COVID-19 pandemic. Enabling these facilities, already challenged under existing market conditions, to participate in

the RFS will help preserve rural jobs, ensure local governments can continue providing trash services, and protect forestry and agriculture supply chains.

- Provide increased funding to the Bioenergy Technology Office (BETO).
- Provide at least \$2 million in funding to the EPA to provide resources for the inclusion of electricity in the Renewable Fuel Standard program and to speed the processing of pending applications from electricity producers before the agency.

Energy Efficiency: Housing

Energy efficiency jobs are the fastest-growing segment of the energy workforce. Key to continuing that growth and expanding the energy efficiency of homes and housing, Congress should consider:

- Appropriation of \$500 million for contractor Home On-line Performance-based Energy-efficiency (HOPE) training.
- Passage of the HOMES Act – Supporting a Clean Energy Workforce.
- Passage of the Housing is Infrastructure Act (H.R. 5187). The goal of infrastructure investment should be to build-back better than the original. Measures beyond H.R. 5187 may be needed to accomplish this goal.

Energy Storage

To support the contributions of the energy storage sector to the U.S. economic recovery and energy future, Congress should consider the following recommendations to:

- Fully authorize and fund the Grid Energy Storage Launchpad facility proposed to be constructed at the Pacific Northwest National Laboratory (PNNL).
 - This will assist with next-generation energy storage technology innovation and commercialization, in line with the objectives of the DOE Energy Storage Grand Challenge. The White House budget request seeks approximately \$50 million for this facility construction in FY2021; the Energy Storage Association (ESA) recommends a multi-year appropriation to the full expected funding requirement.
- Provide \$600 million in FY2021 in grants for distributed energy resources, including energy storage.
 - This should look for opportunities to include municipal infrastructure and microgrids.
- Direct the DOE to dedicate \$250 million to demonstration projects of energy storage across electric systems.
- Incorporate energy storage as an eligible investment for a renewed version of the DOE Energy Efficiency and Conservation Block Grant (EECBG) Program.
- Incorporate energy storage as an eligible investment for Department of Education programs that promote school construction and renovation.

Hydropower

The U.S. water power industry, comprising hydropower, pumped storage, conduit power and marine energy, has a tremendous impact on our nation's electric grid and economy. Hydropower delivers approximately 40% of U.S. renewable electricity, and hydropower pumped storage projects provide 93% of energy storage in the country.

However, the United States has significant underutilized water power resources, including non-powered dams, conduits, new pumped storage and marine energy. The advancement of new and innovative technologies, operations and approaches to harness these resources in a globally competitive marketplace is greatly enhanced by federal funding that augments RD&D efforts in the private sector.

A growing U.S. water power industry will support efforts to address climate change and assist in grid reliability and resiliency, while also advancing national economic goals and contributions to a low-carbon energy future.

Federal funding for RD&D is critical and will help create high-quality employment and support the thousands of businesses that make up the U.S. industrial supply chain. Examples of this critical funding include:

- Pass the Water Power Research and Development Act (H.R. 6084).
 - H.R. 6084 was introduced and reported out of the Subcommittee on Energy by voice vote in early 2020. This bipartisan bill establishes a comprehensive program of RD&D and commercial application activities for the hydropower, pumped storage and marine energy sectors. The bill authorizes close to \$650 million in funding over the next five fiscal years, and this could be expanded given current conditions. Research, analysis and technology development is needed to support grid optimization, inclusive of hybrid systems, storage and optimization of ancillary services.
- Fund operations and maintenance (O&M) upgrades at U.S. Army Corps of Engineers, Bureau of Reclamation and Tennessee Valley Authority hydropower projects to operate, maintain and upgrade existing hydropower projects, as well as to add non-federal hydropower development to their existing non-powered infrastructure.
- Expand, reauthorize and fund the Section 242 (oversubscribed at current authorization level) and Section 243 (authorized but never funded) Energy Policy Act of 2005 for hydropower programs. The Section 242 incentive is designed to bring down costs that can determine the viability of a given project, particularly for small hydropower projects. Due to the oversubscription of the incentive, the program should be fully funded at the \$10 million level.
- Increase funding for the DOE's Water Power Technologies Office (WPTO). The WPTO invests in technology RD&D for innovative standardized and modular approaches to hydropower development that can lower overall project costs and improve deployment time versus traditional projects at greenfield sites and non-powered dams.
 - The WPTO supports the DOE's Advanced Energy Storage Initiative and continues its focus on the roles of hydropower and pumped storage in grid reliability and resiliency by supporting innovative technologies and conducting new research to evaluate and improve the flexibility and grid services provided by hydropower and pumped storage.

- The WPTO also supports the development of innovative environmental mitigation technologies, such as novel fish passage designs and components, in addition to RD&D for early-stage wave, tidal and current technologies, ultimately leading to reduced costs and increased competitiveness of marine energy devices.

Natural Gas

Provide \$1 billion overall to DOE Fossil Energy Research and Development (R&D) programs.

Continued support of these programs will enable diversification of the uses of hydrocarbons in an efficient and environmentally sustainable way. The U.S. natural gas sector is an important part of the U.S. economy and of the global market for oil and gas.

- Provide \$20 million for the Supercritical Transformational Electric Power (STEP) program.
 - The funding would complete the necessary design and construction of the 10-megawatt pilot and testing for the facility. The recommendation provides additional funds for competitively awarded component R&D activities, coordinated with the Office of Nuclear Energy and the Office of Energy Efficiency and Renewable Energy, to advance the use of supercritical power cycles.
 - This is an ongoing effort at the DOE and was competitively awarded.
 - This project is "shovel-ready," with construction underway. Additional funding would complete the construction and testing, providing the nation with a valuable testing platform for the new supercritical carbon dioxide (sCO₂) power generation cycle.
- Provide \$100 million for a new Natural Gas Utilization R&D initiative to convert natural gas and other carbon feedstocks to higher-value cleaner fuels and chemicals, and to test these fuels on power applications and infrastructure.
 - Natural gas is an abundant and cost-effective natural resource that has had a tremendous environmental benefit. The recommendation is for a new initiative within the Office of Oil and Gas to utilize natural gas for purposes in addition to power generation and direct-use applications. The Natural Gas Utilization program would provide valuable research on converting abundant, low-cost natural gas and carbon-based feedstocks to low-carbon, higher-value products, including chemicals, liquids and hydrogen.
 - In addition, the funding should be made available for heavy-duty stationary power application deployment utilizing these cleaner fuels, as well as for testing and validation on existing fuel supply and storage infrastructure. A Natural Gas Utilization Center of Excellence should be established at the National Energy Technology Laboratory (NETL).
 - The initiative would provide diversification for oil and gas resources during an extraordinarily challenging period, as well as provide tremendous environmental benefits by utilizing our domestic resources in the form of cleaner fuels and chemicals.
 - Authority for converting fossil fuels to higher-value products was included in both the 2005 and 2007 Energy Bills. The National Energy Technology Laboratory began roadmap activities for this initiative but has not completed it. A focused initiative with Congressional direction would be extremely beneficial.

- Provide a \$10 million increase for Renewable Natural Gas R&D.
 - Renewable Natural Gas (RNG) is a low- to negative-carbon fuel that can be sourced from a variety of renewable pathways (e.g., biomass, digesters, landfills), but deployment has been limited due to cost, the availability of technologies that can be scaled up to meaningful production volumes, and concerns about the compatibility of existing transportation and distribution infrastructure. Congress should consider providing \$10 million to:
 - Perform R&D for technologies to advance the deployment of conversion processes to advance the supply of RNG to include the assessment of associated transportation and distribution infrastructure.
 - Enable RNG use across existing and planned natural gas transportation and infrastructure networks with particular emphasis on the infrastructure compatibility of the increased hydrogen content of biomass-derived RNG.
- Provide \$200 million for Natural Gas Carbon Capture and Sequestration.
- Provide \$100 million for the Unconventional Field Test Sites Program
- Provide \$100 million for Advanced Turbine R&D for natural gas and hydrogen turbines.
- Provide \$20 million for Emissions Mitigation R&D and Technology Deployment.

Solar Energy

Prior to the COVID-19 crisis, which has dramatically impacted the solar energy industry and slashed solar jobs, the industry was poised for exponential growth. The solar industry receives broad benefits from technology that the Department of Energy helps bring to market. This includes solar plus storage, which has achieved higher asset utilization, smart inverters for flexible power control, better communications and data analytics, and improved codes and standards. For example, federal research has helped the solar industry move toward improved inspection processes, which have been critical throughout the current crisis. Federal R&D has been essential to helping the solar industry create clean energy jobs in the future, which will be crucial in these difficult economic times.

A BCSE Board member, Solar Energy Industries Association (SEIA), will be sending a separate submission to the questionnaire in the coming days. SEIA is the national trade group for America's solar energy industries, representing approximately 250,000 Americans employed in a \$17 billion industry.

Sustainable Transportation

The transportation sector and auto industry are essential to a robust U.S. economy. Pursuing the following recommendations would help to build a more sustainable transportation future.

- Provide the Department of Transportation \$1 billion for electric vehicle charging and hydrogen fueling infrastructure, and the DOE \$100 million for a rebate program for electric vehicle and hydrogen vehicle supply equipment, with integrated energy storage as an eligible component, per Sec. 1401 of S. 2302 and Sec. 432 of the CLEAN Future Act, respectively.
- Increase funding for Advanced Vehicle and Fueling Infrastructure Deployment under the DOE's Clean Cities program.

- Include all four alternative fuels included in Section 1413 of the FAST Act – Electric Vehicles, Hydrogen, Natural Gas and Propane – in any expansion or update of the alternative fuel corridors program.
- Create an Advanced Technology Vehicles Manufacturing program for medium and heavy-duty vehicles (Section 13 of H.R. 5545).
- Create grants and loans for hydrogen, propane and natural gas fueling infrastructure build-out and for zero and low emission vehicles, through legislation such as S. 674 (or Section 1401 of S. 2302).
- Ensure that electric vehicle legislation does not exclude other emissions-reducing alternative fuels such as hydrogen, propane and natural gas.
- Increase funding for the DOE's Fuel Cell Technologies Office to focus on H2@Scale and Market Transformation/Technology Acceleration for advanced demonstrations.
- Fund electric transportation RD&D (Section 10 of H.R. 5545).
- Reauthorize the Diesel Emissions Reduction Act (DERA) (Section 32501 of H.R. 2741) and modify it to further focus on zero-emission vehicles and related infrastructure deployment.
- Create grants for utilities for electric bus (school and transit) mobile power source demonstration grants and for depot charging infrastructure build-out.

Wind Energy

Wind power represents the largest source of U.S. renewable energy capacity. Employing 120,000 individuals from across all 50 states, wind energy is combating climate change while benefiting the American workforce and economy. Congress should consider the following legislation to invest in critical R&D, bolster the wind energy workforce, address crucial infrastructure barriers and assist in the U.S. recovery from the COVID-19 epidemic.

- Pass the bipartisan, bicameral Wind Energy Research and Development Act of 2019. This legislation would authorize the DOE Wind Energy Technologies Office (WETO) and provide important policy direction.
 - The legislation would direct the DOE to conduct research that would generate technological efficiencies, optimize operations, improve grid integration, reduce costs and mitigate wildlife impacts, all of which are facilitators of sustained industry growth.
- Pass the bipartisan, bicameral Promoting Grid Storage Act of 2019. This legislation would improve the coordination of DOE energy storage research programs, fund DOE grants to help entities expand storage functions and provide grants to bring energy storage systems to market.
- Pass the bipartisan Wind Workforce Modernization and Training Act of 2019. This legislation would promote training opportunities for students, community colleges and technical schools; facilitate the modernization of the current U.S. wind technician workforce; and create career pathways for veterans.

- Pass the bipartisan, bicameral Offshore Wind Jobs and Opportunity Act. This legislation would establish an offshore wind career training grant program for community colleges, local governments and non-profit organizations, which would help the United States realize billions in revenue for U.S. supply chain businesses and equip U.S. workers with necessary skills for successful careers in offshore wind.

Further, Congress should consider opportunities to improve interregional transmission planning, understanding regional processes and conditions. This would unleash billions of dollars in investment and create thousands of jobs, which will put Americans back to work.

Support for Small Business in the Energy Sector

The economic impacts of COVID-19 on small businesses across America must continue to be a focus of economic recovery and stimulus assistance. More specifically, the BCSE calls for the following [regulatory relief measures](#), [program reforms](#) and [funding opportunities](#). These actions will help keep small businesses alive and open to assist in the rebuilding of the U.S. economy and of the clean energy economy in particular.

Regulatory Relief

- Provide no-cost extensions of existing grants that are suspended during the COVID-19 crisis.
- Temporarily reduce/waive cost-share requirements across various federal programs (particularly those that are currently around 50%).
- Encourage all federal RD&D agencies to streamline application requirements for federal grant programs, for instance via short-form initial rounds of application / letter of intent to assess eligibility.

Program Reforms

- Bolster and improve the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs.
- Make the Administrative Funding Pilot Program permanent.
- Allow Technical and Business Assistance funds to be spent in-house, rather than mandating one or more external vendors.
- Extend direct-to-Phase-II authority to all agencies and make it permanent.
- Make the Commercialization Readiness Pilot Program for Civilian Agencies and the Commercialization Assistance Pilot Program permanent.

Funding Opportunities

- Fund technical assistance centers or need-based grants to help small businesses navigate application procedures for federal RD&D grants, federal procurement opportunities and disaster aid.

- Provide increased support to the DOE and other RD&D agencies for prize competitions (such as American-Made Challenges), National Laboratory partnerships and similar strategies to provide swift support to rapidly scale up innovative ideas.
- Fund RD&D specifically to reduce the cost of municipal infrastructure that provides multiple essential services, including the generation of energy, managing pandemic waste and disaster debris, and providing essential local government services to residents.
- Increase funding for public-private partnerships such as National Laboratory incubators, small business vouchers to use National Laboratory facilities, technology testing centers, and similar federal infrastructure to help entrepreneurs develop and scale their innovations.
 - This could include reinstating federal support for coordination of the National Incubator Initiative for Clean Energy (NIICE) and competitively awarding funding to incubators, accelerators and similar ecosystem partners to develop or enhance programs to help entrepreneurs successfully commercialize their innovations.
- Explore grant or loan opportunities in the \$2-25 million range for pilot-stage R&D with early customers.
- Increase funding and decrease cost share for ARPA-E SCALEUP and extend this approach to Small Business Innovation Research and other grantees.
 - This could include creating loans that address the gap between Small Business Administration loans (which do not handle technology risk well) and DOE loans (which are \$50 million+ and generally apply to larger businesses) – a potential hybrid approach that offers forgivable loans if commercialization plans fall through.
- Provide funding through the DOE's Advanced Manufacturing Office to support regional manufacturing centers capable of assisting entrepreneurs with rapid-scale, iterative R&D to refine prototypes for prospective clients.
- Provide funding for workforce development programs along with scholarships/fellowships to keep STEM students in the pipeline through the economic crisis.

Next Steps and Areas for Discussion

BCSE members continue to refine this list of recommendations and would be pleased to meet with your staff via conference call or via an online meeting to further the ideas of the Council's coalition members. Please contact Ruth McCormick, Director, Federal and State Affairs at rmccormick@bcse.org or by telephone at 202-557-4002, if you would like to arrange a follow-up conversation.

Sincerely,



Lisa Jacobson
President, Business Council for Sustainable Energy