



## Near-Term Clean Energy Stimulus Proposals

### Summary

The U.S. COVID-19 pandemic has resulted in profoundly detrimental impacts on the American people and the U.S. economy. When our immediate public health crisis passes, we expect the federal government will turn to stimulus and recovery measures in an effort to restart and rebuild the economy. This document provides energy and infrastructure recommendations for Congress to consider as part of these legislative efforts that will help provide near-term economic growth and job creation stimulus.

As federal policy is developed to drive a U.S. economic recovery, Congress should also consider a broad bipartisan framework that addresses the following long-term goals with respect to infrastructure and energy programs:

- Modernize energy infrastructure
- Reinvigorate domestic manufacturing and export capabilities
- Reinforce and strengthen domestic supply chains
- Invest in the foundation of a low-carbon energy system

### Near-Term Energy Policy Agenda

BPC [believes](#) near-term stimulus policies must be designed for quick implementation and should leverage existing laws, authorizations, and programs. Bigger, more ambitious ideas and entirely new programs should be considered in the context of economic recovery legislation that may come after the stimulus. The policy proposals identified here are approaches the BPC Energy Project concludes will help stimulate the economy in a manner that reinforces the long-term the energy and infrastructure goals described above. The main proposals are:

- Increase funding for the Advanced Research Projects Agency-Energy (ARPA-E)
- Increase and modify funding for the Department of Energy's Loan Program Office (LPO)
- Support DOE's Weatherization Assistance Program (WAP)
- Increase funding for DOE's State Energy Program (SEP)
- Bolster the HHS Low Income Home Energy Assistance Program (LIHEAP)
- Build Port Infrastructure to Support Offshore Wind
- Extend the 45Q Tax Credit
- Expand Private Activity Bonds (PABs) for Carbon Capture, Use, and Storage
- Enable Master Limited Partnerships (MLPs) for Clean Energy
- Restart Direct Pay Treasury Cash Grant Program for Energy Tax Credits



## **Appropriations Funding Recommendations**

### **1. Increase Funding for the Advanced Research Projects Agency-Energy (ARPA-E)**

**Category:** Appropriations

**Appropriations committees of jurisdiction:** House and Senate Appropriations Committees – Subcommittees on Energy and Water Development

**Agency:** U.S. Department of Energy

**Program:** Advanced Research Projects Agency-Energy (ARPA-E)

**Description of proposal:** Additional funding of \$220 million (\$200 million for programs with ~10% program administrative funds), on top of \$425 million in current FY2020 funding.

**Funding Level:** Additional \$220 million in FY2020, with a minimum of \$110 million.

**Ease of implementation:** ARPA-E is well positioned to quickly disburse stimulus funding into early-stage energy innovation through two existing and planned solicitation vehicles – the existing SCALEUP program focused on technology demonstrations, and the anticipated 2021 OPEN program, which can be released in 2020.

- SCALEUP, a funding opportunity focused on scaling-up and demonstrating previous ARPA-E projects across the technology spectrum, is currently planned to be \$50 million but ARPA-E can increase the impact of the program by increasing the available resources. Increasing the size of the SCALEUP program offers the highest priority stimulus opportunity to channel money quickly to existing projects planning to hire teams, procure equipment, and build projects starting immediately.
- OPEN 2021, ARPA-E's tri-annual solicitation open to all innovative energy technologies, will be a broad-based call for innovative proposals that can be released in mid- to late-2020 (OPEN 2018 was released in September 2017) and can absorb and distribute the excess funding effectively to more applicants.

**Efficacy:** Job creation, economic growth, technology innovation, long-term economic competitiveness - ARPA-E [investments](#) in high-risk, high-reward energy technologies have led to the formation of 82 new companies, generated 385 patents and attracted more than \$3.2 billion in private-sector follow-on funding over this past decade.

**Other considerations:** ARPA-E grants are awarded to projects at start-ups, universities, national laboratories, and non-profits to support innovative energy R&D, which boosts local jobs and



economic growth, strengthens the overall U.S. innovation ecosystem, and creates the energy companies of tomorrow.

**Legislative status:** ARPA-E Reauthorization Act, S. 2714 and H.R. 4091. The bipartisan Senate bill has been reported by the Senate Energy and Natural Resources Committee and is included in the American Energy Innovation Act. The bipartisan House bill was voted out of the House Science Committee.

## **2. Increase & modify funding for the Department of Energy’s Loan Program Office (LPO)**

**Category:** Appropriations

**Appropriations Committees of jurisdiction:** House and Senate Appropriations Committees - Subcommittees on Energy and Water Development

**Agency:** U.S. Department of Energy

**Programs:** Title 17 Innovative Clean Energy Loan Guarantee Program (Title 17); Advanced Technology Vehicles Manufacturing Direct Loan Program (ATVM); and Tribal Energy Loan Guarantee Program (TELGP).

**Description of proposal:** Use Section 1703 Loan Program Office to quickly start new projects or move existing ones and bring them to the market.

- Appropriate \$2.6 billion credit subsidy for the Section 1703 Innovative Clean Energy Loan Guarantee Program (\$1.1 billion for Advanced Nuclear Energy; \$1 billion for Advanced Fossil Energy; and, \$500 million for Renewable Energy and Efficient Energy) and \$200 million in credit subsidy for the Tribal Energy Loan Guarantee Program to support the commercial deployment of first-of-a-kind energy projects being built in the United States. Additional credit subsidy should have a sunset date 24-months from enactment.
- Increase the administrative budgets of all three programs currently administered by the Loan Programs Office (Title 17, ATVM, and TELGP) to specifically reduce application fees and third-party advisor fees paid by applicants. Additional administrative funds should be two-year funding.
  - Additional \$25 million for Title 17
  - Additional \$7 million for TELGP
  - Additional \$10 million for ATVM



- Increase access to Title 17 by making certain state financing entities eligible to apply (also in Section 1807 of American Energy Innovation Act, S. 2657).
- Expand ATVM eligibility to medium- and heavy-duty vehicles. Eligibility is currently limited to light-duty passenger vehicles and components manufactured for light-duty passenger vehicles that contribute to improved fuel economy.
- Allow federal grants to provide equity contribution for all projects, including from direct pay cash grants. Under the current authority, projects must contribute at least 20% equity, and, in most cases, a larger equity contribution is required (between 35-50%). Furthermore, the “double dipping” requirement currently prohibits federal grants from being applied to projects utilizing a DOE loan. For many of the applicants, raising equity from strong sponsors can be a challenge and delays projects from reaching financial close and commencing construction.

**Funding Level:**

- a. An additional \$2.6 billion in credit subsidy (\$1.1 billion for Advanced Nuclear Energy; \$1 billion for Advanced Fossil Energy; and \$500 million for Renewable Energy and Efficient Energy) and an additional \$25 million in administrative funds for Title 17.
- b. An additional \$200 million in credit subsidy and an additional \$7 million in administrative funds for TELGP.
- c. An additional \$10 million in administrative funds for ATVM.

The additional administrative funds would be appropriated and available for two years, and the additional credit-subsidy would have a sunset date 24-months from enactment.

**Ease of implementation:** The Loan Program Office (LPO) is prepared to move quickly to issue supplements to existing solicitations for all three programs to make the new credit subsidy available to borrowers and lower application fees and third-party advisor fees.

**Efficacy:** Economic development of energy projects, job creation, technology innovation, emissions reduction - With more than \$40 billion in remaining loan authority across all three loan programs currently administered by LPO and a slate of projects currently in the project pipeline, LPO is poised to have a significant impact on American energy and manufacturing industries, especially with additional credit subsidy funding. The 1703 program could have as strong an economic impact as the 1705 program. Under the 1705 loan guarantee program, which made awards through September 30, 2011, DOE guaranteed \$16.1 billion in loans to 25 projects across the country, which supported more than 10,000 jobs and had the capacity to power more than 1 million American homes annually. Further, with \$8 billion in ATVM loans and commitments, DOE has financed projects that have supported more than 35,000 direct jobs and the production of more than 4 million fuel-efficient cars.



**Other considerations:** With more than \$30 billion of loans and loan guarantees issued to date, DOE has a loss rate of less than 3% which is well below that which most private lenders typically experience while being stimulative and supporting innovation. This lays the groundwork for America’s future energy systems and increases funding for a program and an agenda that has bipartisan support.

**Legislative status:** Sens. Murkowski (R-AK) and Manchin (D-WV) introduced and moved the bipartisan American Energy Innovation Act (AEIA) through the Senate Energy and Natural Resources Committee. Section 1807 of AEIA amends Title 17 of the Energy Policy Act of 2005 to expand eligibility. The legislation is currently on the Senate calendar for consideration and was debated on the floor in March 2020.

### 3. Support DOE’s Weatherization Assistance Program

**Category:** Appropriations

**Appropriations Committees of jurisdiction:** House and Senate Appropriations – Subcommittees on Energy and Water Development

**Agencies:** U.S. Department of Energy

**Programs:** Weatherization Assistance Program (WAP)

**Description of proposal:** Provide \$5 billion for the DOE’s WAP to provide home weatherization services to low-income households to improve safety, reduce energy costs, and support job creation.

**Funding Level:** FY2020 funding for WAP was \$303.5 million. This represents a typical year’s funding for the program. During the American Recovery and Reinvestment Act (ARRA) of 2009, a one-time level of \$5 billion was provided for the states and tribes through the program.

**Ease of implementation:** WAP is a well-established program that can easily scale up to serve a larger population with additional funding. This was observed to be a successful program under ARRA given the ongoing relationships with the states and their local partnering organizations.

**Efficacy:** Economic investment, poverty reduction, job creation through contracting services, energy efficiency, emissions reductions and safety - Most WAP funding goes to states and community action agencies for implementation. According to an analysis of ARRA by the Oak Ridge National Lab, funds for weatherization supported up to 28,000 jobs.<sup>1</sup> More than 7 million

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<sup>1</sup> <https://weatherization.ornl.gov/wp-content/uploads/2018/06/WAPNationalEvaluationWxWorksv14blue8515.pdf>



homes have been weatherized through this program, 1 million of which were funded through the ARRA investments. Weatherization can save the average single-family home \$283 annually in energy costs.<sup>2</sup>

**Legislative status:** WAP was established in 1976 and has been funded annually through congressional appropriations. The proposed bipartisan bill (S. 983/ H.R. 2041), the Weatherization Enhancement and Local Energy Efficiency Investment and Accountability Act, would reauthorize WAP through FY2024, including by requiring DOE to award financial assistance to nonprofit organizations for WAP enhancement and innovation. The House Energy and Commerce majority CLEAN Future Act included the stand-alone legislation in their proposal which reauthorizes and expands WAP beginning in FY2021 at \$350M increasing to \$1B in FY2025 through FY2030.

#### **4. Increase funding for DOE’s State Energy Program**

**Category:** Appropriations

**Appropriations Committees of jurisdiction:** House and Senate Appropriations – Subcommittees on Energy and Water Development

**Agencies:** U.S. Department of Energy

**Programs:** State Energy Program (SEP)

**Description of proposal:** Provide \$3.1 billion to the DOE State Energy Program, which provides funding and technical assistance to states to advance state-led energy initiatives and maximize the cost benefits of decreasing energy waste. States and tribal departments design and carry out their own programs related to clean energy, energy security, energy efficiency, energy cost reductions, and other energy service programs.

**Funding Level:** FY2020 funding was \$55 million. It has generally received between \$50-75 million annually. During ARRA, the program received \$3.1 billion.

**Ease of implementation:** SEP is a well-established program that can easily scale up to be directed through the state and tribal formula to be distributed for use.

**Efficacy:** Economic investment, job creation, energy services, energy efficiency, emission reductions – All SEP funding is provided to state and tribes for use. These funds are used differently by each state and tribe.

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<sup>2</sup> <https://weatherization.ornl.gov/wp-content/uploads/2018/06/WAPNationalEvaluationWxWorksv14blue8515.pdf>



**Legislative status:** SEP was established in 1975 and has been funded annually through congressional appropriations. H.R. 2114 and S. 2094, the bipartisan Enhancing State Energy Security Planning and Emergency Preparedness Act of 2019, has passed the House and was marked up in the Senate ENR Committee.

## **5. Bolster the HHS Low-Income Home Energy Assistance Program**

**Category:** Appropriations

**Appropriations Committees of jurisdiction:** House and Senate Appropriations – Subcommittees on Labor, Health and Human Services, Education, and Related Agencies

**Agencies:** U.S. Department of Health and Human Services (Office of Community Services)

**Programs:** Low-Income Home Energy Assistance Program (LIHEAP)

**Description of proposal:** Increase funding of HHS’s LIHEAP support job creation and provide home energy assistance that reduce low-income households’ energy costs.

**Funding Level:** FY2020 funding was \$3.74 billion for LIHEAP overall.

**Ease of implementation:** LIHEAP is a well-established program that can easily scale up to serve a larger population with additional funding and its formula distribution through the states.

**Efficacy:** Economic investment, poverty reduction, job creation through contracting services, energy efficiency, emissions reductions and safety - Most LIHEAP funding goes to states and community action agencies for implementation.

**Legislative status:** LIHEAP was established in 1981 and has been funded annually through congressional appropriations.

## **6. Build Port Infrastructure to Support Offshore Wind**

**Category:** Appropriations

**Appropriations Committees of jurisdiction:** Senate and House Appropriations Committees – Subcommittees on Commerce, Justice, Science Subcommittee

**Agency:** Department of Transportation

**Program:** Maritime Administration (MARAD)



**Description of proposal:** Increase funding for DOT infrastructure grant programs to modernize and upgrade the nation's ports that can support a burgeoning offshore wind industry. Programs include MARAD's America's Marine Highways Program, Port Infrastructure Development Grants Program, the Small Shipyards Grant Program, as well as DOT's National Infrastructure Investments Program/Better Utilizing Investments to Leverage Development (BUILD) Transportation Discretionary Grant Program for port projects.

**Funding Level:**

FY2020 Funding Levels:

- Maritime Administration Operations and Training – Short Sea Transportation Program (America's Marine Highways) - \$9.775 million
- Maritime Administration Port Infrastructure Development Program (Port Infrastructure Development Grants Program) - \$225 million
- Maritime Administration Assistance to Small Shipyards (Small Shipyards Grant Program) - \$20 million

Estimated FY2020 Funding Level from President's FY2021 Budget Request:

- BUILD Transportation Discretionary Grant Program - \$3.568 billion (estimated sum of unobligated balance and appropriations)

The predecessors to DOT's BUILD grants were the TIGER (Transportation Investment Generating Economic Recovery) and TIGER II discretionary grants. Congress provided up to \$1.5 billion in ARRA for TIGER discretionary grants and \$600 million for TIGER II in the Consolidated Appropriations Act of 2010.<sup>3</sup> In total, 14 port-related projects received capital construction grant funds.

**Efficacy:** Economic development, job creation, emissions reduction - Improved ports and infrastructure will strengthen not only the offshore wind industry supply chain, but other industries that rely on quality ports and maritime infrastructure. Port infrastructure is critical to this country's economic vitality and job creation. Increased investments will improve the local economies and help prepare for the future with emerging technologies.

Greater funding for port and maritime infrastructure will better enable the continued growth and development of the offshore wind industry, which is poised for substantial expansion in the United States. Along the East Coast alone, up to 30,000 megawatts (MW) of offshore wind capacity could be operational over the next decade. This represents as much as a \$57 billion

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<sup>3</sup> <https://www.maritime.dot.gov/sites/marad.dot.gov/files/docs/intermodal-systems/marine-highways/3051/maradamhreporttocongress.pdf>





investment in the U.S. economy, supporting up to 83,000 jobs, and driving \$25 billion in annual economic output throughout the next decade.<sup>4</sup>

Port infrastructure that will support the development of offshore wind projects includes large jack-up vessels, heavy duty cranes, turbine assembly area, deep draft berth, among others. These needs will vary depending on the port and the coast. For the West Coast, in particular, greater support is needed to provide wharf and vessel fleets that can support large offshore structure fabrication. A Bureau of Ocean Energy Management study suggests that since offshore wind components for 6 to 8 MW turbines may be too large to transport by rail or road, it may be necessary to develop a network of ports with complementary capabilities (i.e., fabrication, assembly, etc.). Furthermore, offshore wind turbine fabrication requires specialty manufacturing, which could represent new market opportunities for certain manufacturers.<sup>5</sup> These many diverse infrastructure needs, broadly, port upgrades, infrastructure development, and small shipyard improvements, will help maintain or create quality local jobs and local and national economic growth.

## **Finance Recommendations**

### **1. Extend the 45Q Tax Credit**

**Category:** Tax

**Committees of jurisdiction:** Senate Finance Committee, House Ways and Means Committee

**Agency:** U.S. Department of the Treasury

**Program:** Internal Revenue Service

**Description of proposal:** In order to incentivize and improve upon the economics of carbon capture, use, and storage, it is recommended that the 45Q tax credit is extended by 5 years.

**Efficacy:** Economic development, job creation, energy technology innovation, emissions reduction - According to analysis by the DOE, using tax credits for carbon capture, utilization and storage will create between 4.3 to 6.1 million additional jobs between 2020 and 2050<sup>6</sup>. A

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<sup>4</sup> <https://www.awea.org/resources/news/2020/offshore-wind-poised-for-exponential-growth>

<sup>5</sup> A. Porter and S. Phillips. 2016. Determining the Infrastructure Needs to Support Offshore Floating Wind and Marine Hydrokinetic Facilities on the Pacific West Coast and Hawaii. US Department of the Interior, Bureau of Ocean Energy Management, Pacific OCS Region, Camarillo, CA. OCS Study BOEM 2016-011. 238 pp.

<sup>6</sup> <https://www.energy.gov/sites/prod/files/2019/10/f67/Internal%20Revenue%20Code%20Tax%20Fact%20Sheet.pdf>



study by Clean Air Task Force found that by 2030, nearly 49 million metric tonnes of CO<sub>2</sub> could be captured and stored annually at U.S. coal- and gas-fired power plants<sup>7</sup>.

**Other considerations:** Spurs innovation and investment in developing new uses for captured CO<sub>2</sub>, transforming it into an economic resource. Maintains the competitiveness and expands the market opportunities for America's vast fossil fuel resources and our world-leading energy, industrial, and petrochemicals industries.

**Legislative status:** In 2018, the Section 45Q tax credit was updated through the Bipartisan Budget Act. Under this proposal, the 45Q tax credit increased to \$35 per metric ton for EOR and \$50 per metric ton for geologic storage by 2026. The \$35 tax credit is also available for non-EOR CO<sub>2</sub> utilization, and \$50 per metric ton for direct air capture for geologic storage. Since updates were made in 2018, the tax credits have not been available for use due to delays by the IRS to finish issuing guidance. In March, Sen. Capito (R-WV) filed an amendment to the Senate energy innovation bill on the floor to extend 45Q by five years. The larger bill passed out of the Senate ENR Committee on a bipartisan basis.

## 2. Expand Private Activity Bonds for Carbon Capture, Use, and Storage

**Category:** Tax, tax expansion

**Committees of jurisdiction:** Senate Finance Committee, House Ways and Means Committee

**Agency:** U.S. Department of the Treasury

**Program:** Internal Revenue Service

**Description of proposal:** To better enable carbon capture, use, and storage projects, it is recommended that the bipartisan and bicameral Carbon Capture Improvement Act of 2019 (H.R. 3861 and S. 1763), is enacted. The Carbon Capture Improvement Act would allow businesses to use private activity bonds (PABs) issued by local or state governments to finance a carbon capture project.

Started in 1968, PABs are tax exempt municipal bonds that are used to attract private investment for projects that have some public benefit. Qualified projects that may be financed through PABs currently include funding and refinancing student loans, airports, private universities, hospitals, affordable rental housing, mortgage provision for first-time lower-income borrowers,

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<sup>7</sup> <https://www.catf.us/resource/45q-ccs-analysis/>



and more. Just as importantly, they have been used to install emission control equipment on power generation facilities; however, apart from some special conditions that allowed the Petra Nova carbon capture project in Texas to utilize PABs, they are generally not accessible to carbon capture projects.

These bonds are valuable financing tools because they can be paid back over a longer period of time and help lower financing costs overall. Under the Carbon Capture Improvement Act, they would be expanded to carbon capture activities. If more than 65% of CO<sub>2</sub> emissions from a given facility are captured and injected underground, then 100% of the eligible equipment can be financed with PABs. If less than 65% is captured and sequestered, then tax-exempt financing is permitted on a pro-rated basis. PABs have been used for decades to finance conventional pollution control equipment at U.S. power and industrial facilities and capturing CO<sub>2</sub> should be the next step.

**Efficacy:** Economic development, technology commercialization, job creation, emissions reduction - Allowing businesses to use PABs for carbon capture projects could help reduce overall financing costs for commercial-scale projects and potentially increase the number of CCS projects being built in the United States.

**Legislative status:** The bipartisan House version of the Carbon Capture Improvement Act of 2019, H.R. 3861, has been referred to the House Committee on Ways and Means. The bipartisan Senate version of the Carbon Capture Improvement Act of 2019, S. 1763, has been referred to the Senate Committee on Finance.

### **3. Enable Master Limited Partnerships for Clean Energy**

**Category:** Tax, tax expansion

**Committees of jurisdiction:** Senate Finance Committee, House Ways and Means Committee

**Agency:** U.S. Department of the Treasury

**Program:** Internal Revenue Service

**Description of proposal:** Expand a decades old preferential corporate tax structure to better enable the advancement, commercialization, and deployment of innovative and economical energy projects. It is recommended that the bipartisan, bicameral Financing Our Energy Future Act, H.R. 3249 and S. 1841 is enacted. The bill makes a broader range of clean energy technologies eligible for the type of lower cost financing enabled by master limited partnerships. This is in order to ensure there is parity between what fossil fuels are already able to take



advantage of by allowing clean energy technologies and resources to utilize the same tax advantaged financing options. More specifically, an MLP is taxed as a partnership but ownership interests are traded like corporate stock on a market. Income from MLPs is taxed only at the shareholder level. The structure is also highly attractive to investors. At the end of the day, this means lower cost of capital for commercial activities that certain oil and gas companies have enjoyed for decades. Currently, an MLP must generate at least 90% of its income from qualified resources. Currently, MLPs are primarily available to investors of fossil-based projects like oil, natural gas, coal, and pipeline projects. There are currently 77 operating MLPs, which represent approximately \$155 billion of total market capitalization. Of this, 65 are energy related MLPs (84% of the total), representing approximately \$117 billion of market capitalization (76% of the total). The Financing Our Energy Future Act would expand the definition of "qualified" to include a broad range of clean energy resources and infrastructure projects such as solar, wind, marine and hydrokinetic energy, fuel cells, combined heat and power, biorefineries, gasification, and carbon capture projects.

**Efficacy:** Economic development, job creation, technology commercialization, emission reductions - The MLP structure combines the tax benefits of a partnership with a corporation's ability to raise capital in public markets. Allowing carbon capture projects and other advanced energy technologies to qualify as MLPs could help reduce the cost of equity and provide improved access to capital.

**Legislative status:** The bipartisan House version of Financing Our Energy Future Act (FOEF) (H.R. 3249) has been referred to the House Committee on Ways and Means. The bipartisan Senate version of Financing Our Energy Future Act (S. 1841) has been referred to the Senate Committee on Finance. The House Ways and Means Committee majority has included many clean energy tax provisions into the Growing Renewable Energy and Efficiency Now (GREEN) Act proposal, including the Financing Our Energy Future Act.

#### **4. Restart Direct Pay Treasury Cash Grant Program**

**Category:** Tax

**Committees of jurisdiction:** Senate Finance Committee; House Ways and Means

**Agency:** U.S. Department of the Treasury

**Program:** Internal Revenue Service



**Description of proposal:** Offer energy project developers cash payments in lieu of investment or production tax credits. Qualifying energy technologies would include those eligible for a production tax credit (PTC) and an investment tax credit (ITC) as well as an expansion for the 45Q carbon capture, utilization and storage tax credit. Project finance in a slowing economy is a challenge. In these conditions, it becomes especially difficult to finance energy projects that are dependent on tax credits because the tax equity markets (1) get smaller and (2) take a higher proportion of the available credit value as a transaction cost. An effective solution to this challenge in a stimulus context is to offer cash in lieu of credits which makes more resources available to projects and facilitates a greater number of projects advancing. Similar to the economic downturn in 2008-2009, there is a strong likelihood the tax equity market will tighten-up significantly in the months ahead making tax incentives less useful to project developers in the immediate aftermath of the COVID-19 public health crisis. A similar program was included in Section 1603 of the American Recovery and Reinvestment Act (ARRA) for wind and solar projects.

**Time Period of Program:** Program should be available for only 24 months from enactment.

**Ease of implementation:** Treasury could quickly implement this program based on experience with the 1603 program under ARRA.

**Efficacy:** Economic development, job creation, emissions reduction - A National Renewable Energy Laboratory report estimated that 52,000 – 75,000 full time direct and indirect jobs were created in large wind and PV from the 1603 cash grant in 2009-2011 and that an additional 5,100 – 5,500 jobs were created annually during the operational period<sup>8</sup>. If implemented based on the ARRA experience, the program could have similar results to the 1603 program, which disbursed over \$6 billion to help fund 109,766 clean energy projects that were estimated to produce enough clean energy to power over 8.5 million homes. The awards varied in size ranging from \$180 to over \$500 million and included projects located throughout the U.S. and territories. Total estimated private, regional, state and federal investment in 1603 projects was \$94.3 billion<sup>9</sup>.

### **Additional information**

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<sup>8</sup> <https://www.energy.gov/articles/nrel-report-highlights-positive-economic-impact-and-job-creation-1603-renewable-energy>

<sup>9</sup> <https://home.treasury.gov/policy-issues/financial-markets-financial-institutions-and-fiscal-service/1603-program-payments-for>