RESTORING THE ECONOMY WITH CLIMATE SOLUTIONS

RECOMMENDATIONS TO CONGRESS

C2ES CLIMATE INNOVATION 2050

The COVID-19 pandemic and resulting economic fallout represent unprecedented challenges for the United States and the world. While our foremost priorities are stemming the immediate public health crisis and helping those suffering the direct economic consequences, governments must also begin working to revitalize damaged economies. As they undertake these efforts, governments should be mindful of opportunities to simultaneously shift economies to lower-carbon pathways. Actions that can create jobs and stimulate growth in the near term can also reduce greenhouse gas emissions and strengthen climate resilience. This policy brief recommends key steps Congress can take to advance both economic recovery and climate solutions.

Through the Climate Innovation 2050 initiative, the Center for Climate and Energy Solutions (C2ES) is working with leading companies to advance pathways toward carbon neutrality. Our report, *Getting to Zero: A U.S. Climate Policy*, outlines policies that over the coming decade can put the United States on the path to carbon neutrality.[1]

While long-term decarbonization remains our primary focus, we are also leveraging the ideas and networks developed through Climate Innovation 2050 to help identify near-term actions that can contribute to economic recovery. This brief, developed with input from a wide range of companies, recommends a range of measures that Congress should consider incorporating into future economic recovery efforts.

We have prioritized actions that:

- can quickly create jobs and have other clear, near-term economic benefits
- have meaningful climate benefits
- help leverage private investment
- help vulnerable communities
- strengthen resilience
- can be quickly deployed through existing programs.

This brief offers recommendations for:

- Putting Infrastructure to Work
- Powering America
- Keeping America Moving
- Investing in Communities
- Boosting Energy Efficiency
- Strengthening Resilience.

PUTTING INFRASTRUCTURE TO WORK

Our nation's infrastructure is vital to the economic well-being of every sector and region. Historically, public investment in infrastructure has been a strong engine of growth, especially in times of economic hardship. Public works can create jobs and stabilize our economy in the near term, while creating the 21st-century infrastructure that will help sustain growth over the long term.

These recommendations to strengthen power, transportation, broadband, and carbon dioxide (CO_2) infrastructure will simultaneously help to reinvigorate our economy through immediate job creation and better position U.S. workers and firms to compete in a decarbonizing economy.

MODERNIZING POWER INFRASTRUCTURE

The power grid is in many ways the backbone of the nation's economy, but much of the system was not engineered to meet projected power demand or to withstand more extreme weather and cyber threats, raising significant cost and reliability concerns.[2] Major upgrades are also needed to better integrate growing but intermittent renewable energy supplies and to support electrification in transportation and other sectors. A "smarter," more flexible grid could produce savings of more than $150 billion a year by 2030.[3] Investing in grid modernization will create jobs and strengthen U.S. competitiveness. Congress should:

- Increase funding for the Department of Energy's (DOE) Office of Electricity to support efforts to add smart grid functions to transmission and distribution systems, and provide technical and financial assistance for transmission planning analysis.
- Reinstate DOE's Smart Grid Investment Grant program and provide significant cost-share for private sector projects that support two-way power flow; proactively address aging infrastructure; incorporate greater information communication technologies; protect against physical and cyber threats; and harden infrastructure against the impacts of extreme weather.
- Increase funding to the Transportation Infrastructure Finance and Innovation Act program and update eligibility criteria to support electrification and the integration of renewables (e.g., burying high-voltage transmission lines under existing rights-of-way).
- Provide funding to DOE for grid-scale energy storage and microgrid demonstration projects.

In addition, DOE's Loan Program Office (LPO) currently has roughly $24 billion in available power sector-focused loan authority that can be quickly directed to fund power infrastructure.[4] A few targeted reforms can significantly enhance the program's economic stimulus benefits. Congress should:

- Expand LPO eligibility to include power system infrastructure, including transmission and distribution systems, smart grid, and projects that enhance energy infrastructure resilience, many of which are "shovel-ready."
- Make all current funding available through an open solicitation, limit and defer administrative costs, and expand credit subsidies to better leverage private capital.

INTEGRATING CLIMATE INTO TRANSPORTATION INVESTMENTS

Roads, transit systems, airports, and ports are critical enablers of the U.S. economy, but many are in disrepair. Eliminating the estimated $1.2 trillion funding shortfall for road and bridge maintenance over the next several years could create as many as 5 million jobs, making surface transportation improvements a clear priority for any stimulus package.[5] With proactive design, these investments would not only create jobs and boost economic activity, but also help reduce emissions. Toward those ends, Congress should:

- Prioritize the repair of existing roads and bridges, which can begin more quickly and create more jobs than building new roads, and can do more to ease congestion, thereby reducing emissions.[6]
- Ensure that new highway construction is charging and refueling infrastructure-ready.
- Prioritize investments in public transit.
- Prioritize the development of a more efficient U.S. air traffic control system, which could alleviate congestion, reduce delays and reduce jet fuel consumption.

EXPANDING AND UPGRADING BROADBAND ACCESS

Broadband access to the internet has proven invaluable to millions during the global pandemic, allowing people to work, learn, and receive medical attention remotely while sheltering in place. But many do not have access to broadband. The Federal Communications Commission (FCC) estimates that more than a quarter of rural areas do not have coverage from land-based broadband (e.g., cable internet).[7] While 5G wireless can offer high broadband speeds, it is currently available in only a few cities. Beyond immediate jobs building out new infrastructure, wider access to reliable, high-speed broadband can open up new economic opportunities across sectors, and can help modernize the nation's power system by better integrating distributed energy resources. By facilitating broader deployment of "smart" digital technologies,

expanded broadband access can also significantly reduce energy use and carbon emissions across the economy. To build out broadband infrastructure, Congress should:

- Increase funding for the Department of Agriculture's (USDA) Rural Development Broadband ReConnect Program to help expand high-speed broadband in underserved rural areas, and funding for FCC's Lifeline program to expand broadband access for low-income households.
- Provide a short-term tax credit and/or accelerated depreciation for capital expenditures related to licensed 5G and fiber investments.
- Encourage recipients of these benefits to promote capacity-sharing partnerships between utilities and service providers to encourage community broadband access and grid modernization.

CAPTURING AND TRANSPORTING CARBON

The 45Q tax credit for carbon capture utilization and storage (CCUS) projects enacted by Congress in 2018 was projected to leverage $1 billion in capital investment and reduce 49 million metric tons of CO_2 emissions from the power sector by 2030.[8] However, the Internal Revenue Service (IRS) issued guidance for qualifying for the tax credit only in February 2020, after a two-year delay.[9] With the additional hurdles presented by the pandemic, it will be extremely difficult for many CCUS projects to begin construction by the mandated start date of January 1, 2024. Congress should provide a five-year extension for projects to commence construction, extend the duration of the tax credits, and make these projects eligible for direct pay, which will help ensure that projects now in the pipeline can proceed. It is also critical that the IRS continue to ensure full compliance with monitoring and verification of geologic storage.

Broader deployment of CCUS will require significant expansion of pipeline infrastructure to carry captured CO_2 from industrial facilities and fossil fuel-fired power plants to locations where the CO_2 can be utilized or permanently stored. Building this infrastructure will create jobs in rural areas and in the hard-hit energy sector. Congress should facilitate the expansion of CO_2 transportation infrastructure by:

- Making CO_2 pipeline projects eligible for low-interest federal loans and designating them as "pollution control equipment" to allow abatement of property taxes.
- Creating regional demonstration projects that feature large-volume, long-distance interstate trunk lines linking multiple industrial facilities and power plants to move captured CO_2 to utilization and geologic storage sites.
- Directing and funding the Environmental Protection Agency (EPA) to grant states primary authority to approve Class VI (saline) CO_2 storage facilities.

POWERING AMERICA

Clean, reliable, affordable electricity is an essential foundation of a growing economy. The U.S. power sector is undergoing a historic transformation, making clean power one of the fastest-growing segments of the U.S. economy. Sustaining this clean energy transition will preserve and create jobs and drive technological advancements that can create new export opportunities for U.S. manufacturers. These recommendations to extend and expand federal support for clean energy sources and to advance cutting-edge technologies will spur job creation and strengthen domestic supply chains contributing to long-term economic competitiveness.

EXTENDING AND EXPANDING TAX CREDITS FOR CLEAN POWER

Federal investment and production tax credits have helped modernize the nation's energy system by advancing wind, solar, geothermal, and other innovative technologies. A mix of federal tax credits have helped drive the $356 billion invested in U.S. renewable capacity since 2010, and the U.S. solar and wind industries provided more than 350,000 direct jobs in 2018-19.[10] Most of the existing tax credits, however, are scheduled to phase out by the end of 2022.

With many ongoing wind and solar projects jeopardized by the economic downturn, Congress should extend the phase-down period for existing tax credits two years, until 2024, so these projects can continue to qualify. Geothermal energy, currently eligible for a lower investment tax credit, should be made eligible for the full credit. As continuity of construction is a condition for qualifying, bridge financing will be critical in some cases to allow construction to continue (or exceptions should be granted in cases where construction is blocked by safety concerns or supply chain disruptions). Congress

should therefore reinstate the 1603 Program providing cash payments in lieu of tax credits for eligible technologies.

In the case of combined heat and power (CHP), Congress should both extend and raise the existing tax credit and should clarify that waste heat-to-power is a qualifying technology. (Congress also should formally establish the CHP Technical Assistance Partnership Program to strengthen 10 existing regional CHP Technical Assistance Partnerships, which will help drive deployment and associated employment.[11])

Finally, Congress should expand the list of technologies eligible for the existing investment tax credit to include energy storage, offshore wind, and nuclear power. Prior to the pandemic, utility-scale battery storage capacity was projected to more than double by 2023.[12] Similarly, offshore wind was poised to experience significant growth.[13] Both should be made eligible for the investment tax credit (ITC) through 2025. Nuclear power supplies more than half the country's zero-carbon electricity, while contributing significantly to jobs and the local tax bases, particularly in rural communities. With one-third to half of existing plants already facing economic headwinds, Congress should allow them to qualify for an ITC for refueling costs and other capital expenditures, and ensure a timely review of license renewals, extending their operating lifetimes. These technologies should also qualify for in lieu cash payments under the 1603 program, and Congress should ensure that regulated utilities are eligible.

DEMONSTRATING INNOVATIVE TECHNOLOGIES

A number of low-carbon technologies are at critical junctures in their development, and many countries are making significant investments to capture long-term market share. To create near-term jobs and help domestic industries position themselves to compete in these markets, Congress should authorize and fund demonstration projects for low-carbon technologies, particularly those that will foster domestic supply chains and have a competitive advantage in global markets. Examples include advanced nuclear, geothermal, carbon capture, hydrogen, and non-lithium-ion energy storage projects. Federal investments advancing innovative technologies enjoy broad, bipartisan support in Congress, largely because of a strong track record of generating economic returns. Research and development projects at DOE have repeatedly demonstrated significant long-range economic value to the nation, and successful demonstration of emerging technologies is a critical step in the innovation cycle.[14] DOE is well situated to foster the next generation of innovative technologies through existing offices and programs.

KEEPING AMERICA MOVING

U.S. auto manufacturers are investing heavily in a new generation of electric and other zero-emission vehicles offering Americans new mobility options that save money and reduce carbon emissions. By leveraging existing manufacturing infrastructure, these investments are helping to revitalize communities that have experienced the loss of vital auto manufacturing jobs. These recommendations to support the continued growth of the zero-emission vehicle market will preserve existing jobs and help ensure the long-term competitiveness of a nascent industry with the potential to create many more jobs in hard-hit manufacturing communities.

STRENGTHENING INCENTIVES FOR CLEAN VEHICLES AND INFRASTRUCTURE

The zero-emission vehicle (ZEV) industry in the United States has been gaining momentum in recent years and is at a critical juncture in its long-term development. Falling demand would jeopardize emerging domestic production and supply chains that are key to long-term competitiveness in global markets. The production of electric, hybrid, and other clean vehicles employs more than 250,000 Americans.[15] New jobs, including the 1,100 expected as part of a battery manufacturing plant in Lordstown, Ohio, could also be at risk due to the current economic crisis. Reforming the current electric vehicle (EV) and charging and refueling infrastructure tax credits can play an important role in sustaining this vital industry. Congress should:

- Raise the current per manufacturer cap for the EV tax credit, make it available as a point-of-sale rebate, and expand it to include all new ZEVs, including fuel cell EVs.
- Establish higher-value tax credits for medium- and heavy-duty ZEVs, given their larger upfront costs, and repeal the Federal Excise Tax on heavy-duty ZEVs to accelerate the transition toward cleaner fleets.

- Extend the tax credit for EV charging and alternative refueling facilities and raise the current cap of $30,000, which provides too little incentive for projects with high upfront costs such as hydrogen refueling stations. To support investments where there is insufficient tax liability to benefit from tax credits, the credits should be made available as a cash grant instead.

HELPING CITIES AND STATES DEPLOY CLEAN VEHICLES

Government procurement can be a key lever in driving demand for light-, medium-, and heavy-duty electric vehicles. Transit and other fleets managed by state and local governments are well positioned to take advantage of the cost-of-ownership benefits of electric vehicles, but often face challenges meeting higher initial costs. Support provided by EPA under the Diesel Emissions Reduction Act (DERA) has leveraged additional public and private investment to help communities across the country replace older diesel-powered buses and other vehicles, improving air quality and public health and saving more than 450 million gallons of fuel. Yet demand significantly exceeds available funding, with as many as 38 applicants for a single grant in some cases and a 7:1 ratio for national grant competitions. EPA was forced to lower rebates for the replacement of old school buses under the School Bus Rebate Program because demand was so high.[16] Programs administered by the Department of Transportation, including the Low or No Emission Vehicle and the Congestion Mitigation and Air Quality Improvement programs, also help state and local governments acquire clean vehicles and associated facilities. Congress should increase funding for these programs to ensure they can meet community demand and should temporarily decrease participant cost-shares given the strain on state and local budgets.

INVESTING IN COMMUNITIES

The economic impacts of the COVID-19 pandemic have battered communities across the country—urban and rural alike. Thoughtful investments of federal resources can not only provide near-term economic relief but also improve the long-term health and vitality of communities across the nation. These recommendations for targeted investments in water and energy systems, improved mobility and healthy lands can deliver assistance rapidly and effectively while helping communities meet the climate challenge. Recommendations include:

FUNDING CRITICAL RURAL SERVICES

The Rural Utilities Service, administered by USDA, supports infrastructure improvements in rural communities, including water and waste treatment, electric power, and telecommunications services. Expanded funding for these programs would create jobs, return benefits to rural communities, and support U.S. manufacturers. Congress should:

- Expand available loan capital for the Rural Energy Savings Program and expedite the application process to encourage energy upgrades in rural areas—such as more efficient lighting and building, expanded energy storage, and on- and off-grid renewable energy systems—creating jobs and encouraging manufacturing of energy-efficient products.
- Expand funding for Rural Energy for America Program (REAP) grants and loans to farmers and rural small businesses to purchase or install renewable energy systems or make energy efficiency improvements.

SUPPORTING STATE ENERGY PROGRAMS

The State Energy Program (SEP), administered by DOE, is a cost-share program that provides resources directly to state energy offices to provide "mission critical" facilities with energy efficiency and resilience upgrades. It enables states to assist with the development of energy efficiency and renewable projects, job training, and leveraging private project finance to meet state needs. The SEP has an impressive track record, with each dollar in federal spending leveraging nearly eleven dollars in state and private funding and saving more than seven dollars in energy costs.[17] State energy offices received $3.1 billion in funding in 2009-2010 (approximately 60 times current annual appropriations) and were able to deliver projects quickly and effectively.[18] Congress should provide additional funding through SEP to provide grants to state energy offices.

IMPROVING CITY AND REGIONAL MOBILITY

In 2015, the U.S. Department of Transportation launched the Smart Cities Challenge, a competitive grant opportunity for cities to develop strategies for reimagining local mobility. In addition to efforts undertaken by the winner—Columbus, Ohio—the competition spawned public-private partnerships and multi-city collaborative efforts around the country. These efforts, leveraging public private partnerships like the Smart Cities Lab and Project Kinetic, have been developing plans that could be quickly implemented if funded. The projects would create jobs, expand charging and refueling infrastructure, drive ZEV fleet procurement, and enable technological and business model innovations. Congress should provide funding through the Smart Cities program to city and multi-city efforts that can demonstrate they are in a position to quickly move beyond planning into project implementation.

PROMOTING TREE-PLANTING

A wide-scale tree-planting effort—including reforestation of historically forested lands, and afforestation in ecologically appropriate areas—could create thousands of jobs in the near term.[19] An annual federal investment on the order of $4 billion over 20 years would realize the full carbon sequestration potential of tree-planting efforts, while creating more than 150,000 jobs and generating up to $12 billion in economic activity a year.[20] In addition to removing CO_2 from the atmosphere, trees enhance soil health and air and water quality, and increase community resilience to storms, floods, and droughts. Congress should:

- Provide reforestation and afforestation funding through the Environmental Quality Incentives Program, administered by the Natural Resources Conservation Service (NRCS), which provides financial and technical assistance to farmers to deliver environmental benefits. NRCS should also provide private landowners with a greater portion of up-front costs needed to implement projects, and provide cost-share payments to external contractors to help smaller farmers implement tree planting projects.
- Expand the Conservation Reserve Program, which provides incentives to farmers to take active agricultural lands out of production and plant environmentally beneficial species. The program could increase payments for currently eligible projects, as well as expand eligibility to include tree planting on unproductive grazing lands. This expansion would require Congress to raise the program's acreage cap.

BOOSTING ENERGY EFFICIENCY

Steps to improve energy efficiency create jobs, save businesses and consumers money, and reduce carbon emissions. In 2018, energy efficiency was the fastest growing segment of the energy industry, employing more than two million Americans.[21] Yet there remains significant untapped potential—further efficiency improvements could trim the nation's electric bill roughly 16 percent by 2035.[22] These recommendations to strengthen finance, incentives, and public-private partnerships can quickly put people back to work while helping vulnerable communities and producing long-term savings for businesses, consumers, and taxpayers.

EXPANDING LOW-INCOME WEATHERIZATION ASSISTANCE

The Weatherization Assistance Program (WAP) administered by DOE, with supplemental funding from utilities and states, provides grants to states, tribes, and territories to contract with local agencies to deliver weatherization services to low-income families. In 2019, the program was appropriated $257 million, supported 8,500 jobs, and provided weatherization services to approximately 35,000 homes. These households saved an average of $283 in annual energy costs, and the total annual health and household-related benefits for each unit totaled $14,148.[23] Congress has appropriated $305 million for the program in 2020.[24] With expanded funding and accessibility, WAP could put local contractors back to work while saving low-income families hundreds in annual energy costs. Congress should:

- Appropriate additional funding to the WAP.
- Update qualifying household income limits to accommodate families who have suffered economic losses related to COVID-19.
- Direct DOE to expedite the grant application and award process to disburse the funding as quickly as possible.

EXPANDING ENERGY SAVINGS PERFORMANCE CONTRACTS

Energy Savings Performance Contract programs (ESPCs) are partnerships between government agencies and energy service companies (ESCOs) to implement energy savings and facility improvements with no up-front cost to taxpayers, as the ESCOs are repaid through the energy savings. Such contracts are well-established and have been used to fund more than $50 billion in efficiency projects over the last three decades.[25] The Federal Energy Management Program at DOE has leveraged ESPCs as a primary tool for reducing energy consumption across federal agencies by 49 percent.[26] ESPCs create high-skilled, good-paying jobs in engineering, construction, installation, IT, and manufacturing, while saving taxpayer dollars and leveraging significant amounts of private sector investment.[27] ESPCs are administered by DOE's Federal Energy Management Program, the Army Corps of Engineers and the General Services Administration. With up to $333 billion in additional market potential, these programs should be significantly scaled up across federal agencies.[28] Eligibility for these contracts should be broadened to allow third parties, including ESCOs and utilities, to provide distributed energy services such as microgrids**.** Making distributed energy projects eligible would unlock private capital and create significant economic benefit—all at a savings.

REINSTATING ENERGY CONSERVATION GRANTS

DOE's Energy Efficiency and Conservation Block Grant (EECBG) Program, authorized initially under the Energy Independence and Security Act of 2007, distributed federal grants to state and local governments, Indian tribes, and territories to reduce energy use and fossil fuel emissions and to improve energy efficiency. Much of this work was carried out by local private contractors. An evaluation found that from 2009 to 2015 the program created or retained 62,900 direct, indirect or induced jobs, or about one job per $36,000 invested. Additionally, the program produced $5.2 billion of total cumulative savings on energy bills.[29] Congress should:

- Reinstate and fund the EECBG program.
- Prioritize grant awards that create incentives for the purchase of energy-efficient appliances, which will encourage consumer spending, and that support renewable energy installation, which will create jobs and reduce energy costs to consumers.

STRENGTHENING RESILIENCE

One clear lesson of the COVID-19 pandemic is the importance of being well prepared. Faced with the rising economic toll of extreme weather and other climate impacts, communities across the country need help becoming more resilient. Many strategies can help communities prepare for and cope with a wide range of risks, including climate change and future pandemics. Near-term investments can create local jobs within vulnerable communities while significantly reducing the future costs of responding to and recovering from disasters. These recommendations to support proactive resilience, reduce wildfire risk, and improve vital water and waste systems can provide immediate relief to local economies and help communities better withstand future risks.

SUPPORTING PROACTIVE RESILIENCE

The U.S. Department of Housing and Urban Development's (HUD) Community Development Block Grant (CDBG) Program provides flexible grants to help cities, counties, and states for a variety of purposes, including infrastructure and economic development. Due to its flexibility, CDBG has also become a favored instrument for delivering assistance to cities and states recovering from presidentially-declared disasters and emergencies. Broadly, the federal government has spent an estimated $450 billion in disaster recovery since 2005. As disasters increase in frequency and severity due to climate change, the costs of recovery will almost certainly rise. Proactively investing in resilience can provide a sixfold return on taxpayer investment by reducing both the impacts of disasters and the costs of recovery borne by U.S. taxpayers.[30] To strengthen the resilience of U.S. communities, Congress should:

- Authorize and increase CDBG funding, directing HUD to prioritize resilience projects.
- Direct HUD to expedite the grant application and approval process.
- Encourage use of funding to evaluate risks to the grid and other local infrastructure and prioritize funding improvements in these areas.

- Encourage public-private partnerships that can enable a larger and broader set of projects to be funded.

REDUCING WILDFIRE RISK

The U.S. Forest Service's (USFS) 10,000 wildland fire managers are focused increasingly on "fuel reduction projects" such as prescribed fires and clearing brush to help reduce the growing risk of wildfire. The National Interagency Fire Center projects high wildfire risk across most of the Southwest this summer; as climate change contributes to warmer, drier seasons, fire risk across the U.S. will continue to increase.[31] Investing more in fuel reduction efforts will reduce these risks and put large numbers of people to work. Congress should strengthen key USFS programs by:

- Expanding funding for the Wildland Fire Management program with emphasis on hiring and training wildland firefighters.
- Increasing funding for Job Corps Civilian Conservation Centers to train and place at-risk youth ages 16-24 in forest-related trades. This program encompasses 25 centers around the country that train an estimated 5,000 at-risk youth each year in trades including wildland firefighting, forestry, information and business technology, and construction. Increased funding would help students in economically disadvantaged areas find meaningful employment in a difficult job market.

IMPROVING WATER AND WASTE SYSTEMS

EPA's Drinking Water and Clean Water State Revolving Funds (DWSRF and CWSRF) provide low- or zero-interest loans and grants that help communities build and replace water and sewage infrastructure. Leveraging a federal investment of $45.2 billion, the state CWSRFs have provided $138 billion to communities through 2019.[32] A 2016 analysis estimated that 16.5 jobs are generated for every $1 million invested.[33] In addition to creating near-term jobs associated with these projects, this financing can also help make communities more resilient to climate-related weather events and climate impacts like sea level rise and heat waves. Congress should:

- Increase available capital for loans and grants through the CWSRF and DWSRF.
- Prioritize green infrastructure projects in the allocation of funding to produce both mitigation and adaptation benefits, while also contributing to air and water quality to improve the health of communities.

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Other Climate Innovation 2050 Resources:

Getting to Zero: A U.S. Climate Agenda
https://www.c2es.org/content/getting-to-zero-a-u-s-climate-agenda

Pathways to 2050: Scenarios for Decarbonizing the U.S. Economy
https://www.c2es.org/document/pathways-to-2050-scenarios-for-decarbonizing-the-u-s-economy/

Decarbonizing U.S. Agriculture, Forestry, and Land Use
https://www.c2es.org/document/decarbonizing-u-s-agriculture-forestry-and-land-use/

Decarbonizing U.S. Buildings
https://www.c2es.org/document/decarbonizing-u-s-buildings/

Decarbonizing U.S. Industry
https://www.c2es.org/document/decarbonizing-u-s-industry/

Decarbonizing U.S. Oil and Gas
https://www.c2es.org/document/decarbonizing-u-s-oil-and-gas/

Decarbonizing U.S. Power
https://www.c2es.org/document/decarbonizing-u-s-power/

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https://www.c2es.org/document/decarbonizing-u-s-transportation/

C2ES CLIMATE INNOVATION 2050

The Center for Climate and Energy Solutions (C2ES) is an independent, nonpartisan, nonprofit organization working to forge practical solutions to climate change. We advance strong policy and action to reduce greenhouse gas emissions, promote clean energy, and strengthen resilience to climate impacts.

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