



March 30, 2021



The Honorable Dianne Feinstein
The Honorable John Kennedy
Senate Committee on Appropriations
Energy and Water Development Subcommittee
140 Dirksen Senate Office Building
Washington, DC 20510



Dear Chairwoman Feinstein and Ranking Member Kennedy:



We are writing to request your support for increased research and development funding within the Fiscal Year (FY) 2022 Energy and Water Development Appropriations Bill to invest in innovations which will enable us to keep essential energy sources affordable, further reduce emissions and develop the next generation of clean fuels.



Today, natural gas is delivered safely through more than 2 million miles of transmission and distribution pipes to more than 179 million Americans, who use this clean affordable fuel to heat their homes, their water, and cook their food. More than 4.1 million jobs are connected to the natural gas industry, with 3.4 million associated with local distribution companies, or those delivering energy directly to America's homes and businesses. Today 83% of the jobs in the gas distribution sector are local, hiring from the communities they serve.



As the process for considering FY 2022 appropriations is underway, our nation continues to battle the ongoing COVID-19 pandemic, presenting an unprecedented public health crisis and ongoing challenges to our economy. As was the case during the Great Recession, America's natural gas industry can play a pivotal role in jumpstarting our economy, driving jobs, innovation, and clean energy solutions for years to come. As we again look to rebuild our economy, natural gas provides a path that helps us clean our air, reduce emissions, and fight climate change.



The impacts of climate change are evident in our communities today, pointing to the need for reducing emissions economy-wide. More work needs to be done as soon as possible. Continued investment in research, development, and innovation will demonstrate U.S. leadership on clean energy and open the door to revolutionary technologies and fuels, such as renewable natural gas (RNG), and hydrogen. Today, RNG is used to fuel the cleanest commercially-available heavy-duty trucks, resulting in a carbon neutral or carbon negative fuel, depending on the feedstock. Further research is needed to make our vehicles and power cycles cleaner and more efficient and continue to drive down costs. Additionally, since RNG can be used in the same infrastructure as natural gas, it provides a renewable and low carbon alternative for use in homes and businesses, and a sustainable energy option for the industrial sector, all while utilizing the existing, skilled workforce. Still, federal investment is needed to ensure RNG can be produced more efficiently and continue to be delivered safely to our homes and businesses, enabling the





existing current energy infrastructure to be leveraged to provide more renewable energy and drive down emissions.



In addition to RNG, the use of hydrogen as a low-carbon resource shows much promise, especially in those harder to decarbonize sectors of the economy. Additional research and demonstration funding is needed to develop new lower-cost pathways to produce hydrogen from both fossil and renewable sources; to enable the long-term storage of hydrogen effectively; to deliver hydrogen safely and efficiently through our natural gas infrastructure; and to safely utilize hydrogen in our homes, businesses, industry and power grid. These are not trivial tasks and will require both funding and thought leadership in order to achieve aggressive decarbonization goals.



The continued transition to a lower-carbon U.S. energy sector is also aided by the natural gas industry's continued focus on energy efficient technologies, both for the pipeline system and direct use applications. Continued federal R&D investment along with private capital deployment remain necessary to accelerate energy efficiency measures that can contribute even more to our shared emissions reductions goals. As evidence, the U.S. added 40 million natural gas customers over the last decade, yet greenhouse gas (GHG) emissions dropped more than 12 percent over that time.



With unprecedented challenges come the opportunity for American leadership, technology, and innovation to provide the backbone of not only our economic recovery efforts, but of our fight against climate change. To that end, the undersigned companies respectfully request the inclusion of the following funding requests and Report Language to the Fiscal Year 2022 Energy and Water Development Appropriations Bill:



Fossil Energy R&D, Natural Gas Technologies, Sustainable Fuels and Chemicals R&D

Request: \$40,000,000

Report Language: Natural gas is an abundant and cost-effective natural resource that has had a tremendous environmental benefit, but further innovation is needed to decarbonize our economy. The Committee directs the Department to establish a new research and development initiative within the Oil and Gas office to effectively utilize natural gas for decarbonization solutions. The Committee provides \$40,000,000 for the Sustainable Fuels and Chemicals research and development program to provide valuable research converting abundant, low-cost natural gas, natural gas liquids and other gas streams to low-carbon, sustainable products, including chemicals and fuels, such as ammonia and hydrogen. Comprehensive planning approaches for transitioning segments of the economy to hydrogen and other low-carbon fuels should be part of the program, including analysis of the infrastructure required to store and transport these fuels. The Committee also supports the establishment of a Center for Sustainable Fuels and Chemicals at the National Energy Technology Lab, and provides \$15,000,000 for this initiative from within available funds.





EERE, Building Technologies

Request: \$5,000,000 for the Thermal Heat Pump Consortium

Report Language: Thermally-driven heat pumps (THPs) offer the next generation of space conditioning and/or water heating for low-load buildings and have the potential to reduce greenhouse gas (GHG) emissions by 40% or greater in a typical home. Further work is needed to test and evaluate these technologies in the field, including application for waste heat recovery. The Committee directs the Department to establish a Thermal Heat Pump Consortium, led by a non-profit, to integrate and deploy new THP technologies in a joint industry partnership.



EERE, Building Technologies

Request: \$30,000,000 for R&D for the Efficient Use of Natural Gas in Buildings

Report Language: The Committee is concerned with the lack of funding for applied natural gas R&D within the Buildings Technology Program. Within available funds, the Committee provides \$30,000,000 for applied research and development for energy efficiency efforts related to the direct use of natural gas in residential and light-commercial applications, including natural gas-powered heat pumps that provide space heating and/or water heating, on site combined heat and power (CHP), self-powered natural gas appliances to improve reliability and resilience, hybrid natural gas and electric systems, further venting research, and technologies compatible with decarbonized fuels, including biofuels and hydrogen.



EERE, Vehicle Technologies, Fuels and Lubricant Technologies

Request: \$15,000,000 for Natural Gas Vehicle Research

Report Language: The Committee is concerned with the lack of funding for natural gas vehicles. Abundant, domestic, low-cost natural gas, provides the largest and most cost-effective NOx emissions reductions and is often the only viable alternative fuel for high fuel-use fleets. Further research is needed on natural gas storage, natural gas engines, fueling infrastructure optimization, and the use of renewable natural gas as a vehicle fuel. Within available funding, the Committee includes \$15,000,000 to address technical barriers to the increased use of natural gas vehicles, including medium and heavy duty on-road natural gas engine research and development, energy efficiency improvements, emission reduction technologies, fuel system enhancements, natural gas storage, fueling infrastructure optimization, and renewable natural gas research and development.



Fossil Energy R&D, Natural Gas Technologies, Natural Gas Infrastructure

Request: \$30,000,000 for Emissions Mitigation and Quantification, and Hydrogen

Report Language: The Committee recommends funds to support natural gas storage, upstream, midstream and distribution infrastructure research, including advanced mitigation solutions and novel sensor technologies that allow for continuous and remote monitoring of emissions. The Committee remains supportive of investment in smart pipeline sensors and controls, internal pipeline inspection and repair, and composite and advanced material science technologies. The Committee also recognizes the importance





of leveraging our tremendous infrastructure as we develop technologies and solutions to achieve reduction in GHG emissions which includes the potential for transporting low carbon fuels such as hydrogen. Hydrogen blending efforts are already being initiated and there is a need for additional research to understand the impacts to existing infrastructure, such as pipelines, storage and other system components but also to ensure the safety and integrity of the system as we transition to higher blends and potentially 100% scenarios. Within available funds, the Committee provides not less than \$10,000,000 for this hydrogen infrastructure research.



Fossil Energy, Supercritical, Transformational Electric Power Initiative

Request: \$20,000,000 –STEP Program

Report Language: Within available funds for STEP, the agreement supports efforts, consistent with the original scope of work, to complete the necessary design and construction of the 10-MW pilot and to conduct the necessary testing for the facility. The agreement also provides funds for competitively-awarded research and development activities, coordinated with the Offices of Nuclear Energy and Energy Efficiency and Renewable Energy, to advance the use of supercritical power cycles.



Fossil Energy R&D, Advanced Energy Systems

Request: \$50,000,000 for Advanced Turbine R&D for Gas and Hydrogen

Report Language: Within available funds for Advanced Energy Systems, the Committee provides \$50,000,000 for Advanced Turbines. The Department is directed to use these funds for a research and development program to improve the efficiency of gas turbines and for component development and integration with power generation systems with and without pre-combustion carbon capture. This program should include research utilizing cleaner fuels such as hydrogen and hydrogen-natural gas blends, and ammonia and ammonia-hydrogen blends, to test and validate components and their performance as an integrated system, working cooperatively with industry, universities, and other appropriate parties.



Fossil Energy R&D, Unconventional Fossil Energy Technologies

Request: \$50,000,000 for Unconventional

Report Language: Given the importance of unconventional resources to our domestic energy supply, continued research and technology development is required to develop our natural resources in the most environmentally friendly way possible. Improved operations and resource recovery will allow the U.S. to meet our energy needs with fewer new wells. Technologies that can minimize the environmental impact of this resource recovery – including reduced surface footprints, water resource demand, fugitive methane emissions, etc. – are needed. This innovative testing and deployment can only be accomplished through the DOE's Field Test Sites - comprehensive field experiments that improve the environmental impact of recovery, collect critical data and insights on our geology, and provide operational efficiency. Continued research focused on produced water management and beneficial re-use, and methane emissions (particularly flaring)



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capture and beneficial re-use, are also needed. Within available funds, the Committee provides \$20,000,000 for the Field Test Site Program.



EERE, Bioenergy Technology Office

Request: \$10,000,000 increase for RNG R&D

Report Language: Renewable Natural Gas (RNG) is a low- to negative-carbon fuel which 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 regarding compatibility of existing transportation and distribution infrastructure. The Committee recommends \$10,000,000 to perform R&D of technologies to advance the deployment of conversion and purification processes to advance the supply of RNG as a clean fuel option, to include the assessment of associated transportation and distribution infrastructure to 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.

Direct Air Carbon Capture R&D

Request: \$40,000,000 for Direct Air Capture in Fossil Energy; Energy Efficiency and Renewable Energy; and Office of Science

Report Language: The Committee recommends \$40,000,000 for technology research and development on direct air carbon capture and removal. These efforts should be coordinated with the Office of Science, the Office of Energy Efficiency and Renewable Energy and the Office of Fossil Energy to develop a coordinated program, as recommended by the National Academies, that supports research, development, and demonstration projects to advance the development and commercialization of direct air capture technologies on a significant scale.

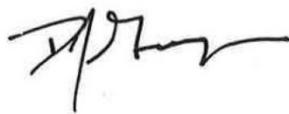
Thank you for your consideration of these important research and development initiatives. Your continued support for these R&D investments will result in new jobs across the country, enhanced energy independence, and ensure that our resources – such as our resilient infrastructure – are used more safely, efficiently, and in a more environmentally sustainable manner as we continue to address the critical challenge of climate change.

Sincerely,

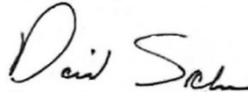
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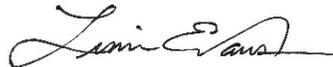
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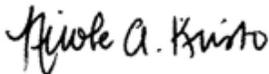
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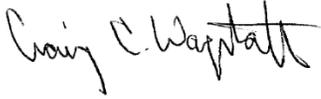
Sherrie Merrow
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Hugh Donnell
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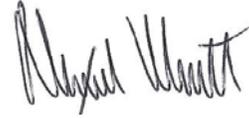
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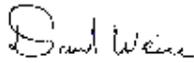
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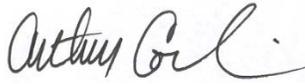
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Aaron Johnson
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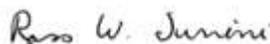
Johnny Johnston
Chief Operating Officer
Liberty Utilities



Arthur Corbin
President & Chief
Executive Officer
Municipal Gas Authority
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David P. Bauer
President and CEO
National Fuel Gas
Company



Ross Turrini
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Engineering and Process
National Grid



Robert L. Poehling
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Greg Chumley
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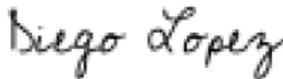
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Joe Hamrock
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NiSource Inc.



Diego Lopez
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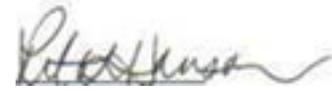
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Steve Ghormley
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Kimberly A. Heiting
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Ron Snedic
President
Operations Technology
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Christine Cowsert
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Vice President, Asset
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Pacific Gas and Electric
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Craig E. White
President & CEO
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Janet Kelly
Director, State & Federal
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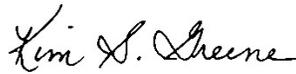
Robert L. Russell
President
Russell Energy Corporation



Neil Navin
Vice President,
Clean Energy Innovations
SoCal Gas



J. Gregory Henderson
President & CEO
Southeast Gas



Kim Greene
Chairman, President
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Jose Esparza
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Southwest Gas Corporation



Suzanne Sitherwood
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