
February 21, 2019

The Honorable John Barrasso
Chairman
Committee on Environment & Public Works
United States Senate
410 Dirksen Senate Office Building
Washington, D.C. 20510

The Honorable Thomas R. Carper
Ranking Member
Committee on Environment & Public Works
United States Senate
456 Dirksen Senate Office Building
Washington, D.C. 20510

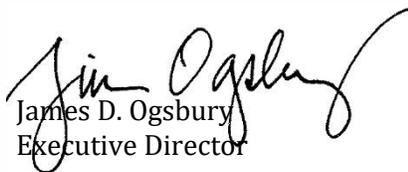
Dear Chairman Barrasso and Ranking Member Carper:

The United States has the opportunity to continue global leadership in carbon capture, utilization, and storage (CCUS) research and technology development. Western Governors support federal policies that promote the development and deployment of CCUS. Thank you for examining this important topic at your February 27 Hearing to Examine S. 383, the Utilizing Significant Emissions with Innovative Technologies Act, and the State of Current Technologies that Reduce, Capture, and Use Carbon Dioxide. To inform the Committee's consideration of this subject, I request that you include the following attachments in the permanent record of the hearing:

- WGA Policy Resolution [2018-07, Enhanced Oil Recovery](#);
- WGA Policy Resolution [2018-04, Energy in the West](#), and the Governors' [Energy Vision for the West](#); and
- The Governors' [April 24, 2018 letter](#) to the Committee in support of S. 2602, the Utilizing Significant Emissions with Innovative Technologies Act.

Thank you for your consideration of this request.

Respectfully,



James D. Ogsbury
Executive Director

Attachments



Policy Resolution 2018-07

Enhanced Oil Recovery

A. BACKGROUND

1. Enhanced oil recovery (EOR), using carbon dioxide (CO₂), when performed appropriately and responsibly offers a safe and commercially proven method of domestic oil production. The U.S. oil and gas industry, which pioneered the CO₂ EOR process in West Texas in 1972, is the world leader. For decades, the EOR industry has captured, transported, and injected large volumes of CO₂ for oil recovery with no major accidents, serious injuries or fatalities reported.
2. The CO₂ EOR process typically works by injecting CO₂ obtained from natural and anthropogenic sources into existing oil fields – often referred to as “brownfields” – to produce additional crude trapped in rock formations. This CO₂ “flooding” can result in recovery of about twenty percent of the original oil in place.¹ CO₂ flooding utilizes existing assets to recover significant additional resources stimulating the economy and minimizing surface disturbance that new exploration and development projects necessarily entail. In addition, many areas favorable for CO₂ application exist where new or continued significant drilling activity is unlikely to occur at a meaningful scale for years, if ever.
3. As of 2013, EOR using CO₂ produced approximately 280,000 barrels of domestic oil per day, or four percent of U.S. crude oil production.²
4. America has an estimated 21.4 billion barrels of oil, requiring 8.9 billion metric tons of CO₂, which could be economically recovered with today's EOR technologies. With advances in technology, 63.3 billion barrels of oil, requiring 16.2 billion metric tons of CO₂, could be economically recovered, which is roughly double current U.S. proven reserves.³
5. EOR enhances our nation's energy and fiscal security by reducing dependence on foreign oil, often imported from unstable and hostile foreign sources. It allows reduction of our trade deficit by keeping dollars now spent on oil imports here at home and at work in the U.S. economy.
6. Coal, oil, and other industrial processes are a vital component of many western states' economies. EOR provides a long-term path for continued low-carbon production and use of our nation's coal and oil resources, while industrial sources can provide CO₂ at lower capture costs. EOR presents an opportunity for state and local governments to stimulate economic activity and realize additional revenue by transforming their CO₂ emissions into a valuable commodity.

¹ National Energy Technology Laboratory – Untapped Domestic Energy Supply and Long Term Carbon Storage.

² Energy Information Administration – Annual Energy Outlook 2015.

³ U.S. Department of Energy, National Energy Technology Laboratory.

7. CO₂ is currently limited in availability from sources needed for EOR – natural sources will not close a supply gap projected to grow. Further, CO₂ capture and pipeline transport capacity to oil fields is not sufficient.
8. CO₂ capture equipment, installed on a broad range of industrial processes, has the potential to supply significant volumes of CO₂ to the EOR industry enabling the U.S. to achieve significant net carbon reductions through the permanent storage of CO₂.⁴
9. The U.S. has the opportunity to continue global leadership in carbon capture and storage (CCUS) research and technology development, while further deploying CCUS technologies that provide financial benefits to our nation's entire value chain.

B. GOVERNORS' POLICY STATEMENT

1. In recognition of the environmental and economic benefits of EOR, Western Governors will work collaboratively to promote broad scale development of infrastructure for carbon capture, CO₂ pipelines, EOR, and other forms of geologic storage.
2. Western Governors support efforts to increase the awareness of the many benefits of CO₂ EOR.
3. In order to expand deployment of CO₂ capture at power plants and other industrial sources, the President and Congress should continue to enact federal incentives to increase CO₂ supply available for the oil industry to purchase and use in EOR. Federal incentives have the potential to leverage private and state investment, harness the ingenuity of entrepreneurs and capitalize on billions of dollars' worth of DOE-sponsored research and development to enable new commercial carbon capture and pipeline projects.
4. Federal policies aimed to limit CO₂ emissions should promote, and not impede, development and deployment of CO₂ capture and commoditization. Federal regulations should allow states to create programs tailored to individual state needs, industries and economies and recognize permanent CO₂ storage that results from EOR in meeting federal regulatory objectives. As such, EPA should abide by principles already established by the Agency in its regulations promulgated to ensure the permanent storage of CO₂ in different geologic formations.
5. Recognizing that lack of pipeline infrastructure is a critical challenge to deployment of CCUS technology, Western Governors support proactively identifying, analyzing and evaluating opportunities for pipeline corridors to transport industrial and power plant CO₂ for beneficial use and permanent storage.

⁴ As of 2014, approximately 13.6 million metric tons of CO₂ was captured that would otherwise be released into the atmosphere has been permanently stored as a result of EOR (U.S. Department of Energy – Quadrennial Energy Review). Over the life of a project, for every 2.5 barrels of oil produced, it is estimated that a typical commercial EOR project can safely prevent one metric ton of CO₂ from entering the atmosphere (Kuuskraa, Godec, Dipietro – Energy Procedia). Further, the volume that could be captured and permanently stored from industrial facilities and power plants to support economically recoverable EOR reserves could be 8.9 to 16.2 billion metric tons of CO₂. This is equal to the total U.S. CO₂ production from fossil fuel electricity generation for approximately 4 to 8 years (EPA 2015 Green House Gas Inventory).

C. GOVERNORS' MANAGEMENT DIRECTIVE

1. The Governors direct WGA staff to work with Congressional committees of jurisdiction, the Executive Branch, and other entities, where appropriate, to achieve the objectives of this resolution.
2. Furthermore, the Governors direct WGA staff to consult with the Staff Advisory Council regarding its efforts to realize the objectives of this resolution and to keep the Governors apprised of its progress in this regard.

Western Governors enact new policy resolutions and amend existing resolutions on a bi-annual basis. Please consult www.westgov.org/policies for the most current copy of a resolution and a list of all current WGA policy resolutions.



Western Governors' Association Policy Resolution 2018-04

Energy in the West

A. BACKGROUND

1. Energy policy and the development of sustainable energy resources are major priorities for every Western Governor.
2. Western Governors recognize that approaches to energy use and development vary among our states, territories, and flag islands. However, the Governors remain committed to the development of policies and utilization of state energy endowments that result in the maximum benefit for their citizens, the region, and the nation.
3. Western energy production is indispensable to meeting national energy demands. The West is the energy breadbasket of the United States:
 - a. Western states have all high-yield geothermal energy capacity in the continental United States.
 - b. Western states supply the majority of non-federal United States petroleum.
 - c. Western states are at the forefront of unconventional natural gas production.
 - d. The Pacific Northwest produces the largest output of hydropower in the nation.
 - e. Western states have the largest contiguous areas of wind power resources in the nation.
 - f. The Southwest has some of the highest-identified solar energy resource areas in the United States.
 - g. Western states produce the largest portion of coal in the United States, which is the fuel that constitutes the largest share of the national electricity generation mix.
 - h. The West has the largest contiguous areas of high-yield biomass energy resource potential in the nation.
 - i. Western states have nuclear power generation facilities and produce all domestic uranium.
4. Western states, Pacific territories, and flag islands have the resources to drive job creation and economic development through broad growth in the energy industry.

5. The Merchant Marine Act of 1920 has prevented certain noncontiguous states, territories, and flag islands from being supplied with domestically produced energy commodities.

B. GOVERNORS' POLICY STATEMENT

1. Western Governors recognize the following as energy policy priorities for the West:
 - a. Secure the United States' energy supply and systems, and safeguard against risks to cybersecurity and physical security.
 - b. Ensure energy is clean, affordable, and reliable by providing a balanced portfolio of renewable, non-traditional, and traditional resources.
 - c. Increase energy efficiency associated with electricity, natural gas, and other energy sources and uses to enhance energy affordability and to effectively meet environmental goals.
 - d. Advance efficient environmental review, siting, and permitting processes that facilitate energy development and the improvement and construction of necessary electric grid (transmission and distribution) and pipeline infrastructure, while ensuring environmental and natural resource protection.
 - e. Improve the United States' electric grid's reliability and resiliency.
 - f. Protect western wildlife, natural resources, and the environment, including clean air and clean water, and strive to reduce greenhouse gas emissions.
 - g. Make the West a leader in energy education, technology development, research, and innovation.
 - h. Utilize an all-of-the-above approach to energy development and use in the West, while protecting the environment, wildlife, and natural resources.
2. Western Governors support increasing the development and use of energy storage, alternative transportation fuels, and alternative vehicles.
3. Western Governors call on the federal government to lift a barrier to domestic free trade between the contiguous United States and the noncontiguous states, territories and U.S. flag islands by the Merchant Marine Act of 1920 by allowing those jurisdictions to receive energy commodities produced in the mainland but transported by foreign vessels, should those jurisdictions, and the jurisdictions whose ports are being used to ship these materials, desire it.
4. Redundant federal regulation of energy development, transport, and use is not required where sufficient state, territorial, or flag island regulations exist. Existing state authority should not be replaced or impeded by Congress or federal agencies.

C. GOVERNORS' MANAGEMENT DIRECTIVE

1. The Governors direct WGA staff to work with Congressional committees of jurisdiction, the Executive Branch, and other entities, where appropriate, to achieve the objectives of this resolution.
2. The Governors also direct WGA staff to consult with the Western Interstate Energy Board to recommend updates to the 10-Year Energy Vision that provide detail on the Governors' energy policy objectives outlined in this resolution.
3. Furthermore, the Governors direct WGA staff to consult with the Staff Advisory Council regarding its efforts to realize the objectives of this resolution and to keep the Governors apprised of its progress in this regard.

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Energy Vision for the West

Introduction

The resource-rich West supplies a majority of the country's energy resources and electric power. The United States is currently projected to become a net energy exporter within five years. The increase in natural gas developed in the West, coupled with increased investment in renewable and alternative energy sources, have positioned the region and its Governors to play a central role in the nation's economy and energy policy.

The West's vast energy resources and the Governors' role in the development of energy policy underscores the value of a regional energy policy, the *Energy Vision for the West*. This policy does not impede states or territories from approaching energy choice and industry growth based on their own resource endowments and policies. It illustrates that Western Governors have coalesced around common issues and specific goals, despite diverse geography, resources, and politics. The *Energy Vision for the West* elaborates on the Governors' objectives set forth in WGA Policy Resolution [2018-04](#), *Energy in the West*.

Western Governors support a comprehensive energy portfolio for the West to ensure that energy is clean, affordable, and reliable. They are also committed to energy policies that promote economic growth and protect the environment. This approach facilitates a strong economy and jobs across a variety of professions, skill sets, and educations.

This approach also recognizes that there are challenges and opportunities associated with every type of energy resource and use, the costs and benefits of which must be considered in policymaking. One such opportunity – and challenge – is creating an effective state-federal partnership in energy development, lands management, and environmental protection. This regional policy is a guide for realizing opportunities to advance the West as the nation's principal energy provider and a leader in energy innovation and effective policy.

Goal 1: Secure the United States' energy supply and systems, and safeguard against risks to cybersecurity and physical security.

Addressing threats to the nation's energy systems and resources is a high priority of Western Governors. Coordination between states, the federal government, and the private sector on energy emergency planning and response is vital to addressing physical and cybersecurity impacts on the West's energy systems and resources. To this end, the Governors establish the following objectives:

- Work with the Department of Defense to meet its national security mission by ensuring safe and secure onsite and off-site electricity generation for key defense installations.
- Continue to reduce reliance on non-North American oil imports from unstable foreign sources through individualized state-by-state solutions, such as increasing North American production, improving fuel efficiency, and developing renewable and alternative fuels.

- Ensure there is sufficient domestic energy supply, including domestic renewable electric generation, to meet existing and new market demand.
- Identify security and other vulnerabilities of energy infrastructure and create programs and standards to defend infrastructure from cyber and physical attacks, as well as natural disasters.
- Encourage effective relationships between state agencies, federal agencies, public utilities, and the private sector to prevent and prepare for risks to the region's energy supply and systems, as well as to respond to and recover from disruptions.
- Partner with the federal government to ensure the provision of adequate funding and access to resources for state emergency planning, response, and recovery.
- Expand, upgrade, and secure transmission and pipeline infrastructure, as well as ensure that all federal pipeline safety measures are efficiently implemented.

Goal 2: Ensure energy is clean, affordable and reliable by providing a balanced portfolio of renewable, non-traditional and traditional resources.

Western Governors believe that a balanced energy portfolio should consist of energy sources that are clean, affordable and reliable, that maintain system reliability, and limit rapid rate increases. These resources also require the maintenance and expansion of transmission and distribution infrastructure. To this end, the Governors establish the following objectives:

- Recognize the importance of western renewable (wind, solar, biomass, biofuels, geothermal, hydropower), nuclear, coal and natural gas resources, and the generation facilities that utilize those resources.
- Adapt utility regulation to changing markets, technologies, and resources.
- Encourage the addition of renewable, low-carbon, and clean generation, including utility-scale and distributed generation.
- Promote, advance and fund the evolution of new technologies, including carbon capture and advancements in renewable energy.
- Maintain the Rural Energy for America (REAP) program, which has benefited farmers, ranchers and rural businesses that are often underserved by other federal energy efforts.

Goal 3: Increase energy efficiency associated with electricity, natural gas, and other energy sources and use to enhance energy affordability and to effectively meet environmental goals.

Eliminating waste and using resources wisely are cornerstones of a sound energy strategy. State and local governments, utilities, households, and businesses are currently realizing the economic and other benefits of energy efficiency, but there are still substantial gains to be made. To this end, the Governors establish the following objectives:

- Prioritize energy efficiency associated with electricity, natural gas, and vehicle transportation.

- Enhance utility rate designs, including time-varying rates, and cost-effective utility energy efficiency programs that deliver electricity and natural gas savings to consumers.
- Support energy efficiency programs that provide incentives and rebates to lower the incremental up-front costs of energy efficiency technologies; Energy Service Company (ESCO) programs; and where successful, utility ratepayer-funded energy efficiency programs, including the use of rate decoupling.
- Encourage the retrofit of residential and commercial buildings and improve the energy efficiency of new buildings, such as through building energy codes and programs that stimulate energy efficient construction.
- Decrease energy intensity using tools such as combined heat and power and waste heat to power systems.
- Incorporate systems strategies to improve efficiency throughout the building lifecycle and to improve grid connectivity, including energy systems that enable two-way, automated utility-to-customer communications to facilitate demand response programs.
- Maintain funding and support long-term authorization for the State Energy Program (SEP), Weatherization Assistance Program (WAP), and Low-Income Home Energy Assistance Program (LIHEAP).

Goal 4: Advance efficient environmental review, siting and permitting processes that facilitate energy development and the improvement and construction of necessary electric grid (transmission and distribution) and pipeline infrastructure, while ensuring environmental and natural resource protection.

Responsible energy development and a robust, well maintained energy delivery system are vital to the economy and quality of life in the West. To this end, the Governors establish the following objectives:

- Encourage responsible leasing and development of energy resources and infrastructure.
- Create a clear and transparent process for regulation and permitting, coordinated among well-trained and adequately funded federal, state and local agencies.
- Streamline project-permitting reviews to minimize timelines, without compromising environmental and natural resource protection or states' roles in those processes.
- Maintain state and local decision-making authority over transmission line siting and permitting.
- Encourage regional transmission planning organizations to conduct interconnection-wide planning with the full participation of the states and with consideration of state energy policies.
- Create functional partnerships among states, federal agencies, tribal governments and local jurisdictions to solve conflicts that hinder energy infrastructure and resource development.

- Increase cooperation on interstate projects through interstate compacts and other tools.
- In the West-wide energy corridor process, ask federal agencies to guarantee: ongoing, substantive, and meaningful state consultation; consideration of state plans, processes, priorities, and policies; and integration of other streamlining efforts.

Goal 5: Improve the United States electric grid’s reliability and resiliency.

Changes in energy generation, distribution, and management are transforming the nation’s electric grid. But these advancements also highlight the need for grid level investment, along with associated updates for electricity regulation and policy. To this end, the Governors establish the following objectives:

- Protect state authority to determine the type and amount of new generation facilities and the programs used to procure new generation, recognizing that each state has their own priorities and portfolios.
- Protect state authority to encourage continued operation of existing generation facilities through long-term contracts, retail utility contracting, or other incentives.
- Encourage regional reliability organizations, utilities, state agencies and public utility commissions to assess the provision of essential reliability services under future scenarios that include a changing resource mix in the West.
- Support grid operator situational awareness of distributed energy resources by promoting coordination between utilities and distributed energy resource developers.
- Preserve areas of exclusive state authority regarding distributed energy resources, including storage, and improve utility distribution systems planning for distributed energy resources to enhance grid reliability and resilience.
- Improve understanding of grid resources and services and the need for new power production facilities and transmission/distribution infrastructure through data, analysis, and coordination.
- Prepare for potential disruptions to the grid from wildfires, flooding, earthquakes, tornadoes, cyberattacks and other disturbances and emergencies, as well as increase the grid’s ability to withstand and reduce the magnitude of such events.
- Enable utilities to take necessary actions to enhance grid reliability and reduce the threat of wildfires to and from electric transmission and distribution rights-of-way.

Goal 6: Protect western wildlife, natural resources and the environment, including clean air and clean water, and strive to reduce greenhouse gas emissions.

Western states have long assumed a stewardship role for the natural environment and have worked across state lines to protect air, land, wildlife and water. Western Governors are committed to ensuring that energy development is done in an environmentally responsible manner. To this end, the Governors establish the following objectives:

- Promote energy technologies and sources that lower emissions.
- Continue advancing air and water quality improvements and plans in each state and across state lines.
- Foster environmental cooperation that: protects the state-federal partnership; provides for sustainable environmental protection; is nimble and flexible; and ensures that state governments play a key role in regulation.
- Acknowledge that a productive economy and responsible development can support environmental protection by providing additional funding and opportunities for public-private partnership.
- Encourage technologies that reduce water consumption, prioritize water consumption for traditional activities (drinking water, agriculture, habitat conservation/restoration), and contribute to the responsible development of new energy resources.
- Achieve a balance between the responsible development of energy projects and wildlife conservation.
- Urge the federal government to identify and approve solutions for the long-term storage and permanent disposal of spent nuclear fuel and nuclear waste.
- Encourage the development and deployment of a full range of technologies that offer the potential for cost-effective reductions in greenhouse gas emissions from energy production and use, including carbon capture and storage, energy efficiency, zero emissions generation sources, and other emerging options.

Goal 7: Make the West a leader in energy education, technology development, research, and innovation.

Effective energy policy is facilitated by an understanding of a common set of impartial facts and scientific evidence. Furthermore, the advancement of technology will play a critical role in realizing a clean energy future. To this end, the Governors establish the following objectives:

- Leverage the vast expertise in the West's industry, academic institutions, and national laboratories to make the region an international hub for new energy technology research and development, as well as energy education.
- Encourage Congress and the Department of Energy to support and fund research, development, demonstration, and deployment of advanced energy technologies.
- Create public-private research and development partnerships among industry, academia, the national labs, and federal agencies to identify promising new technologies, including energy efficiency technologies that advance clean energy with reduced environmental impacts.
- Encourage market operators, reliability organizations, and utilities to appropriately share electric system operational data with researchers, educators, and entrepreneurs to promote

electric system innovation and technology development, while still safeguarding against risks to cybersecurity and physical security.

- Encourage training and education in energy-related fields and ensure there is an adequate workforce operating under the highest safety standards.
- Facilitate the creation of employment opportunities for displaced energy sector workers.
- Educate the public regarding: the role of energy in maintaining a high standard of living and quality of life; trade-offs and externalities associated with all types of energy development and consumption; the coexistence of a healthy environment and a thriving economy; and how federal policy on public lands impacts energy and infrastructure development.

Goal 8: Utilize an all-of-the-above approach to energy development and use in the West, while protecting the environment, wildlife and natural resources.

A diverse energy portfolio is essential to the provision of clean, affordable, secure, and reliable energy. Western Governors support a comprehensive energy portfolio, including: oil, gas, coal, nuclear, biomass, geothermal, hydropower, solar, wind, and conservation and energy efficiency. To this end, the Governors establish the following objectives:

- Reduce costs and risks for the environmentally sound development of all energy resources.
- Ensure competition in the market for all resources.
- Recognize the growing importance of consumer choice in driving energy policy.
- Support consumer choice of distributed energy resources to achieve affordability, environmental, and other objectives.
- Increase the development and use of alternative transportation fuels and vehicles, including the necessary infrastructure for those vehicles.
- Encourage innovation and application of energy storage, including pumped hydro storage, battery storage, and compressed air energy storage where cost-effective.
- Support the responsible and efficient development and use of traditional and renewable resources.
- Increase the amount of electricity generated from new, retrofitted, or relicensed hydroelectric facilities, including small, irrigation, and flood control hydropower projects.
- Restore financing for the geothermal exploration program financed by the Department of Energy.
- Accelerate the introduction of small modular reactors into the marketplace.

April 24, 2018

Honorable John Barrasso
Chairman
Committee on Environment and Public Works
United States Senate
410 Dirksen Senate Office Building
Washington, D.C. 20510

Honorable Thomas R. Carper
Ranking Member
Committee on Environment and Public Works
United States Senate
456 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Chairman Barrasso and Ranking Member Carper:

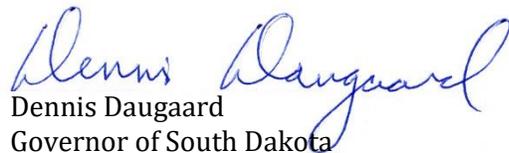
The U.S. is the global leader in carbon dioxide (CO₂) capture, utilization and sequestration (CCUS) research, development and deployment. Given the appropriate resources and regulatory environment, we will advance our technologies so that we can continue to use our abundant resources while minimizing our carbon footprint. Western Governors support the bipartisan Utilizing Significant Emissions with Innovative Technologies (USE IT) Act ([S. 2602](#)), which will facilitate development and deployment of CCUS infrastructure.

Western Governors have long supported advancement of carbon capture technology due to its environmental and economic benefits. S. 2602 directs the Environmental Protection Agency to support research on direct air capture and CO₂ utilization, with a focus on technologies that transform CO₂ into a product or product input with commercial value. The bill also clarifies that carbon capture and utilization projects and pipelines are eligible for the streamlined permitting process under the Fixing America's Surface Transportation (FAST) Act and directs the Council on Environmental Quality to develop guidance on reviews of CCUS projects and CO₂ pipelines.

Furthermore, WGA Policy Resolution [2017-01](#), *Building a Stronger State-Federal Relationship*, advocates for greater state representation on committees and panels advising federal agencies on scientific, technological, social, and economic issues. We are pleased that this bill requires the task force to include states (at their request) and to provide models for, and technical assistance to, states for CCUS projects and CO₂ pipeline regulation.

Thank you for your leadership in this area of crucial importance to our nation's economy, energy, and environment, as well as for your recognition that states have a critical role in promoting the development and utilization of carbon capture technologies. Please do not hesitate to contact us if we can be of further assistance.

Sincerely,



Dennis Daugaard
Governor of South Dakota
Chair, WGA



David Ige
Governor of Hawaii
Vice Chair, WGA