

Calendar No. 362

116TH CONGRESS }
2d Session }

SENATE

{ REPORT
{ 116-198

NEXUS OF ENERGY AND WATER FOR SUSTAINABILITY ACT OF 2019

JANUARY 7, 2020.—Ordered to be printed

Ms. MURKOWSKI, from the Committee on Energy and Natural Resources, submitted the following

R E P O R T

[To accompany S. 2799]

[Including cost estimate of the Congressional Budget Office]

The Committee on Energy and Natural Resources, to which was referred the bill (S. 2799) to require the Secretary of Energy and the Secretary of the Interior to establish a joint Nexus of Energy and Water Sustainability Office, and for other purposes, having considered the same, reports favorably thereon with an amendment and recommends that the bill, as amended, do pass.

AMENDMENT

The amendment is as follows:

In section 918 of the Energy Policy Act of 2005 (as added by section 3(a)), strike subsection (c) and insert the following:

“(c) Funding.—The Secretary shall use funds made available to the Secretary and not otherwise obligated to carry out this section.”.

PURPOSE

The purpose of S. 2799 is to require the Secretary of Energy (Secretary) and the Secretary of the Interior to establish a joint Nexus of Energy and Water Sustainability Office (NEWS Office).

BACKGROUND AND NEED

Vast amounts of water are used every day to produce vital fuels and to cool power plants in the United States. At the same time,

electricity is needed to treat, transport, and convey water across the country—not only to support economic growth and well-being, but also to sustain basic life. These inseparable links of water for energy and energy for water comprise the energy-water nexus.

Congress has long recognized the inextricable linkage and mutual dependence of energy and water. Section 979 of the Energy Policy Act of 2005 (EPAAct '05, Public Law 109–58) directed the Secretary to carry out a research and development program on energy-related issues associated with the provision of adequate water supplies and on water-related issues associated with the provision of adequate supplies and efficient use of energy, and to assess the effectiveness of existing programs of the Department of Energy (DOE) and other Federal agencies to address energy-water nexus issues.

Similarly, with subtitle F of the Secure Water Act (title IX of the Omnibus Public Land Management Act of 2009, Public Law 111–11), Congress recognized the need for systematic data-gathering on the nation’s water resources to ensure sufficient quantities of water to support energy production; authorized water conservation grant programs within the Bureau of Reclamation; directed the Secretary to assess water supplies needed to generate hydroelectric power at Federal power marketing administration projects; and enhanced collection of data on water by the United States Geological Survey. The Government Accountability Office has also issued several reports on the energy-water nexus and called for better coordination of Federal programs addressing the energy-water nexus.

S. 2799 seeks to provide better coordination, management, and streamlining of science and technology research, development, and demonstration (RD&D) activities related to the energy-water nexus across the Federal Government. The bill establishes a coordinating mechanism within the cabinet-level National Science and Technology Council, which is the principal office within the executive branch for coordinating science and technology policy across the Federal Government. It also provides for a pilot grant program to develop smart energy and water efficiency technologies.

LEGISLATIVE HISTORY

S. 2799 was introduced by Senator Murkowski on November 6, 2019.

In the 115th Congress, a similar measure was included as section 4101 in S. 1460, the Energy and Natural Resources Act of 2017. S. 1460 was introduced by Senators Murkowski and Cantwell on June 28, 2017, and placed directly on the Legislative Calendar (Cal. 162).

In the 114th Congress, Senator Murkowski introduced similar legislation, S.1218, on May 6, 2015 (S. Hrg. 114–344). Senator Baldwin was later added as a cosponsor. The Committee on Energy and Natural Resources held a hearing on S. 1218 on June 9, 2015. A similar measure was included as section 4001 in S. 2012, the Energy Policy Modernization Act of 2016. An original bill, S. 2012 was reported by the Committee on Energy and Natural Resources on July 30, 2015, and passed by the Senate, as amended, on April 26, 2016, by a vote of 85–12.

In the 113th Congress, Senators Murkowski and Wyden introduced similar legislation, S. 1971, on January 29, 2014. Senators

Udall, Landrieu, Schatz, and Baldwin were later added as cosponsors. The Committee on Energy and Natural Resources held a hearing on S. 1971 on June 25, 2014, and favorably reported the bill, as amended on November 13, 2014. (S. Hrg. 113–428; S. Rept. 113–296).

The Senate Committee on Energy and Natural Resources met in open business session on November 19, 2019, and ordered S. 2799 favorably reported, as amended.

COMMITTEE RECOMMENDATION

The Senate Committee on Energy and Natural Resources, in open business session on November 19, 2019, by a majority voice vote of a quorum present, recommends that the Senate pass S. 2799, if amended as described herein. Senator Lee asked to be recorded as voting no.

COMMITTEE AMENDMENT

During its consideration of S. 2799 the Committee adopted an amendment offered by Senator Lee to strike the authorization to appropriate \$15 million for the Smart Energy and Water Efficiency program and insert an authorization for the Secretary to use unobligated funds otherwise made available to the Secretary to fund the program.

SECTION-BY-SECTION ANALYSIS

Section 1. Short title

Section 1 sets forth the bill’s short title as the “Nexus of Energy and Water for Sustainability Act of 2019” or the “NEWS Act of 2019.”

Section 2. Nexus of Energy and Water for Sustainability

Section 2(a) defines key terms.

Subsection (b) establishes the NEWS Office and an accompanying Interagency Coordination Committee (NEWS Committee). The NEWS Office is to be located at DOE and run jointly by the Secretary and the Secretary of the Interior in their capacity as co-chairs of the NEWS Committee. The subsection specifies the NEWS Committee’s duties, including serving as a forum for developing goals and plans on energy-water nexus RD&D activities; issuing biannual strategic plans on energy-water nexus RD&D priorities and objectives; facilitating data collection, management, and dissemination of information related to energy-water nexus RD&D; and identifying opportunities for public-private partnerships. This subsection further states that the NEWS Committee lacks the authority to issue regulations or set standards. The subsection also directs the NEWS Office to review the activities, relevance, and effectiveness of the NEWS Committee five years after it is established, and to report the review’s results to Congress, along with a recommendation as to whether the NEWS Committee should continue.

Subsection (c) directs the NEWS Office co-chairs to submit an interagency crosscut budget to the Senate Committee on Energy and Natural Resources and the House Committees on Science,

Space, and Technology; Energy and Commerce; and Natural Resources.

Section 3. Smart Energy and Water Efficiency Pilot Program

Section 3(a) amends EAct '05 to add a new section 918 to authorize a Smart Energy and Water Efficiency Pilot Program.

The new section 918(a) defines key terms.

The new section 918(b) establishes the program to award grants to demonstrate unique, advanced or innovative technology solutions to improve the net energy balance of water, wastewater, and water reuse systems, including to make measurable progress in reducing water and energy use; real time energy and water use data systems; and new sensor technology. The subsection directs that the grants are to be competitively awarded to between three and five eligible entities based on specified selection criteria. The selection criteria includes energy and cost savings; the uniqueness, commercial viability, and reliability of the technology to be used; and the anticipated cost-effectiveness of the pilot project. The subsection directs the Secretary to select grant recipients within one year of enactment and perform annual evaluations to assess whether performance measures and benchmarks have been met. The Secretary is also directed to provide technical and policy assistance to grant recipients, develop best practices, and report on grant evaluations to Congress.

The new section 918(c) specifies that any funding to carry out the new section 918 is to come from otherwise unobligated amounts available to the Secretary.

Section 3(b) makes a conforming amendment to the table of contents to the EAct '05.

COST AND BUDGETARY CONSIDERATIONS

The following estimate of the costs of this measure has been provided by the Congressional Budget Office:

At a Glance			
S. 2799, NEWS Act of 2019			
As ordered reported by the Senate Committee on Energy and Natural Resources on November 19, 2019			
By Fiscal Year, Millions of Dollars	2020	2020-2024	2020-2029
Direct Spending (Outlays)	2	19	20
Revenues	0	0	0
Increase or Decrease (-) in the Deficit	2	19	20
Spending Subject to Appropriation (Outlays)	1	5	not estimated
Statutory pay-as-you-go procedures apply?	Yes	Mandate Effects	
Increases on-budget deficits in any of the four consecutive 10-year periods beginning in 2030?	No	Contains intergovernmental mandate?	No
		Contains private-sector mandate?	No
The bill would			
<ul style="list-style-type: none"> Direct the Department of Energy (DOE) to use unobligated funds to award grants for projects that implement technology-based solutions to make water systems more efficient Require DOE and the Department of the Interior to establish a joint office and an interagency coordination committee on energy and water issues 			
Estimated budgetary effects would primarily stem from			
<ul style="list-style-type: none"> Using previously appropriated but unobligated amounts to finance the grant program The costs associated with managing the joint office and interagency committee 			
Areas of significant uncertainty include			
<ul style="list-style-type: none"> The size of awards that would be made under the grant program 			
Detailed estimate begins on the next page.			

Bill summary: S. 2799 would direct the Department of Energy (DOE) to establish a smart energy and water efficiency pilot program. Under that program, DOE would award grants to eligible entities for implementing technology-based solutions to improve the efficiency of water systems. The bill would require DOE to use unobligated funds that are available to the department to finance the program.

The bill also would direct DOE and the Department of the Interior (DOI) to establish a joint office and an interagency committee to develop a strategic plan and coordinate research, development, and demonstration projects on energy and water issues.

Estimated Federal cost: The estimated budgetary effect of S. 2799 is shown in Table 1. The costs of the legislation fall within budget functions 270 (energy) and 300 (natural resources and environment).

TABLE 1.—ESTIMATED BUDGETARY EFFECTS OF S. 2799

	By fiscal year, millions of dollars—											
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2020–2024	2020–2029
	Increases in Direct Spending											
Estimated Budget Authority	0	0	0	0	0	0	0	0	0	0	0	0
Estimated Outlays	2	4	6	5	2	1	0	0	0	0	19	20

TABLE 1.—ESTIMATED BUDGETARY EFFECTS OF S. 2799—Continued

	By fiscal year, millions of dollars—												
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2020– 2024	2020– 2029	
	Increases in Spending Subject to Appropriation												
Estimated Authorization	1	1	1	1	1	n.e.	n.e.	n.e.	n.e.	n.e.	5	n.e.	
Estimated Outlays	1	1	1	1	1	*	n.e.	n.e.	n.e.	n.e.	5	n.e.	

n.e. = not estimated; * = between zero and \$500,000.

Basis of estimate: For this estimate, CBO assumes that the legislation will be enacted near the end of 2019 and that the necessary amounts will be available in each year. Estimated outlays are based on historical spending patterns for similar activities.

Direct spending: Section 3 would direct DOE to establish a smart energy and water efficiency pilot program and to award three to five grants to eligible entities for implementing technology-based solutions to improve the efficiency of water supply, wastewater, and water reuse systems. The bill would require DOE to use unobligated amounts otherwise available to the department to finance the program. CBO considers such spending to be direct spending because it would occur without further appropriation and we expect that DOE would use previously appropriated funds that otherwise would not be spent over the next 10 years. (At the end of fiscal year 2019, DOE's unobligated balance totaled more than \$7 billion.)

CBO expects that DOE would award four grants under the program within the next year, and that grant recipients would complete their projects within five years of acceptance. Based on the costs of similar projects, CBO estimates that DOE would provide \$5 million for each grant. In total, we estimate that enacting S. 2799 would increase direct spending by \$20 million over the 2020–2029 period.

Spending subject to appropriation

Section 2 would direct DOE and DOI to jointly establish a Nexus of Energy and Water Sustainability Office and an interagency coordination committee. Under the bill, the committee would develop a strategic plan on research, development, and demonstration projects on energy and water issues, convene agencies periodically, coordinate related data collection, and report on the feasibility of establishing an energy-water center of excellence within the National Laboratories. Using information from DOE, and based on the costs of similar tasks, CBO estimates that the government would require six additional employees at an average annual cost of \$150,000 each to staff the joint office and manage the committee. In total, we estimate that implementing S. 2799 would cost \$5 million over the 2020–2024 period, subject to the availability of appropriated funds.

Uncertainty

The largest area of uncertainty associated with S. 2799 is the overall size of the proposed grant program. If DOE selects projects that are more expensive than those funded under similar programs or if there are limited or no cost sharing requirements for grant recipients, S. 2799 would increase direct spending by more than what

CBO estimates. If DOE used future appropriations instead of those from previous fiscal years, S. 2799 would have a smaller effect on direct spending and a larger effect on spending subject to appropriation.

Pay-As-You-Go considerations: The Statutory Pay-As-You-Go Act of 2010 establishes budget-reporting and enforcement procedures for legislation affecting direct spending or revenues. The net changes in outlays that are subject to those pay-as-you-go procedures are shown in Table 2.

TABLE 2.—CBO’S ESTIMATE OF THE STATUTORY PAY-AS-YOU-GO EFFECTS OF S. 2799, THE NEWS ACT OF 2019, AS ORDERED REPORTED BY THE SENATE COMMITTEE ON ENERGY AND NATURAL RESOURCES ON NOVEMBER 19, 2019

	By fiscal year, millions of dollars—											
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2020– 2024	2020– 2029
	Net Increase in the Deficit											
Pay-As-You-Go Effect	2	4	6	5	2	1	0	0	0	0	19	20

Increase in long-term deficits: None.

Mandates: None.

Previous CBO estimate: On October 30, 2019, CBO transmitted a cost estimate for H.R. 2665, the Smart Energy and Water Efficiency Act of 2019, as ordered reported by the House Committee on Energy and Commerce on July 17, 2019. H.R. 2665 is similar to section 3 of S. 2799, and CBO’s estimates of the budgetary effects are the same for both provisions.

Estimate prepared by: Federal costs: Janani Shankaran and Aaron Krupkin; Mandates: Brandon Lever.

Estimate reviewed by: Kim P. Cawley, Chief, Natural and Physical Resources Cost Estimates Unit; H. Samuel Papenfuss, Deputy Assistant Director for Budget Analysis.

REGULATORY IMPACT EVALUATION

In compliance with paragraph 11(b) of rule XXVI of the Standing Rules of the Senate, the Committee makes the following evaluation of the regulatory impact which would be incurred in carrying out S. 2799. The bill is not a regulatory measure in the sense of imposing Government-established standards or significant economic responsibilities on private individuals and businesses.

While personal information is already collected on federal employees under existing law, no additional personal information would be collected in administering the program. Therefore, there would be no impact on personal privacy.

Little, if any, additional paperwork would result from the enactment of S. 2799, as ordered reported.

CONGRESSIONALLY DIRECTED SPENDING

S. 2799 as ordered reported, does not contain any congressionally directed spending items, limited tax benefits, or limited tariff benefits as defined in rule XLIV of the Standing Rules of the Senate.

EXECUTIVE COMMUNICATIONS

The testimony provided by the Department of the Interior at the June 25, 2014, hearing on S. 1971, a similar measure to S. 2799, follows:

TESTIMONY OF DEPUTY ASSISTANT SECRETARY FOR WATER
AND SCIENCE TOM ISEMAN, DEPARTMENT OF THE INTERIOR

Chairman Schatz, Ranking Member Lee and members of the Subcommittee, I am Tom Iseman, Deputy Assistant Secretary for Water and Science at the Department of the Interior (Department). Thank you for the opportunity to testify on S. 1971, Nexus of Energy and Water for Sustainability Act of 2014. The Administration has not completed its review of S. 1971 in conjunction with the report issued by the Department of Energy last week, entitled The Energy-Water Nexus: Challenges and Opportunities (U.S. Department of Energy 2014). The bill would create a Committee or Subcommittee on Energy-Water Nexus for Sustainability under the National Science and Technology Council (NSTC), co-chaired by the Secretary of Energy and Secretary of the Interior. The Department has a number of existing programs that address many of these energywater nexus issues, some of which are summarized below.

Founded in 1879, the USGS is the Nation's largest water, earth, and biological science and civilian mapping agency. The USGS collects, monitors, analyzes, and provides scientific understanding about natural resource conditions, issues, and problems. The USGS provides impartial scientific information on the health of our ecosystems and environment, the water and energy resources we rely on, and the impacts of climate and land-use change. With a diversity of scientific expertise, the USGS carries out large-scale, multi-disciplinary investigations and provides scientific information to resource managers, planners, and other customers.

Reclamation owns and operates water projects that promote and sustain economic development within the 17 western States. The mission of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public. Since it was established in 1902, Reclamation has constructed more than 600 dams and reservoirs including Hoover Dam on the Colorado River and Grand Coulee on the Columbia River. Reclamation is the largest wholesaler of water in the country, delivering water to more than 31 million people, and providing one out of five western farmers with irrigation water for 10 million acres of farmland across the United States. Reclamation is also the second largest producer of hydroelectric power in the United States, and provides significant amounts of renewable energy to customers throughout the West.

EXISTING PROGRAMS AT THE DEPARTMENT OF THE INTERIOR

The Department recognizes the importance of the energy-water nexus and supports a closer level of communication and coordination between the Department of the Interior, Department of Energy and the broader federal community. The Department of the Interior appreciates the Committee's leadership on the energy-water nexus issue. Energy and water issues intersect across a range of Interior activities, including hydropower generation, energy development, electricity generation, and water treatment, distribution, and conservation. Interior has a variety of programs that address the energy-water nexus, including USGS monitoring systems and research programs (including the National Water Census), Reclamation Basin Studies, and WaterSMART Grants. Understanding the value of interagency coordination, Interior has partnered with the Department of Energy and the Department of the Army (working with the U.S. Army Corps of Engineers) through a 2010 Memorandum of Understanding (MOU) to collaboratively address a host of energy-water nexus issues related to hydropower. By coordinating efforts, the signatory agencies have completed a number of projects that promote sustainable hydropower development, including hydropower resource assessments, unit-dispatch optimization systems, climate change studies, integrated basinscale opportunity assessments, and funding opportunities to demonstrate new small hydropower technologies.

The Department is committed to integrating energy and water policies to promote the sustainable use of all resources, including incorporating water conservation criteria and the water/energy nexus into the Department's planning efforts. On June 9, 2014, the Department announced that Reclamation will make \$17.8 million in WaterSMART Water and Energy Efficiency Grants available to 36 new and ongoing projects in the Western United States for activities such as conserving and using water more efficiently, increasing the use of renewable energy, improving energy efficiency, encouraging water markets, and carrying out activities to address climate-related impacts on water. Reclamation also announced that it will make \$1.8 million available for comprehensive water basin studies conducted jointly with state and local partners in the Upper Red River Basin in Oklahoma, Upper Deschutes River Basin in Oregon, and Missouri River Headwaters Basin in Montana. These announcements support the President's Climate Action Plan by providing tools for states and water users to create water supply resilience to meet future water and energy demands in the face of a changing climate.

Water and Energy Efficiency Grants and Basin Studies are part of the Department's WaterSMART Program. WaterSMART Grants provide cost-shared funding to States, tribes, and other entities with water or power delivery authority for water efficiency improvements, with

additional consideration given to proposals that include energy savings as a part of planned water efficiency improvements. Water management improvements that incorporate renewable energy sources are also prioritized for WaterSMART Grant funding. These grants directly address the energy-water nexus and provide a concrete means of implementing on-the-ground solutions to energywater issues. The FY 2014 Water and Energy Efficiency Grant projects are expected to conserve more than 67,000 acre-feet of water annually and 22.9 million kilowatt-hours of electricity—enough water for more than 250,000 people and enough electricity for more than 2,000 households. Basin Studies are collaborative studies, cost-shared with non-Federal partners, which analyze how climate change may affect water supply, demand and operations in the future and identify adaptation strategies to address imbalances in water supply and demand.

In addition to long-standing USGS efforts in water supply and availability and in energy resource assessments and research, which provide an essential foundation for understanding issues related to the energy-water nexus, the USGS participates in a number of interagency efforts. The USGS has been working with the Energy Information Administration (EIA) since 2010 to improve estimates of water withdrawals¹ and consumptive use associated with cooling water at thermoelectric generating plants across the Nation. Cooling water for such plants is the largest sector of water withdrawals in the United States, at 49% of all water withdrawals nationwide, according to USGS Circular 1344, *Estimated Use of Water in the United States in 2005*. A recent USGS report, *Methods for Estimating Water Consumption for Thermoelectric Power Plants in the United States* (Scientific Investigations Report 2013—5188), documents the model that the USGS developed with the assistance of the EIA for estimating electric generating plant water withdrawals and consumptive use, which are currently not consistently reported. This ground-breaking model, which incorporates the heat budget of each of the approximately 1,300 thermoelectric generating plants that rely on water for cooling, can be used both to estimate current and historical water use and to forecast future water use with different plant configurations and cooling water technologies.

In addition to the efforts above, the FY 2015 President's Budget requests an additional \$2 million for the USGS to provide water use grants to States that will increase availability and quality of water use data including data related to water used for energy. These grants would provide financial resources, through State water resources agencies, to improve the availability and quality of water use data that they collect and would integrate those data with the USGS Water Census. Funding provided to States through

¹Withdrawals are defined as water removed from the ground or diverted from a surface-water source for use.

these grants would be targeted at improvements to water use data collection and integration that will be of the greatest benefit to a national assessment of water availability and use. As the energy sector is a primary user of water, increased availability of water use information related to energy will be an important part of this effort.

In mid-April 2014, the USGS released an expanded and updated version of the USGS oil, gas, and geothermal Produced Waters Database and Map Viewer; the revised database contains nearly 100,000 new samples from conventional and unconventional well types, including geothermal. The availability of more samples and more types of analyses will help farmers determine the quality of local produced water available for possible remediation and reuse, will enable local and national resource managers to track the composition of trace elements, and will help industry plan for waste-water injection and recycling.

The Powder River Basin in northern Wyoming and southern Montana has experienced a rapid expansion in the development of coalbed natural gas. About 90 billion liters of water were produced annually in the Wyoming portion of the Basin between 2002 and 2011 as part of the extraction process. The produced waters are moderately saline and have high proportions of sodium relative to calcium and magnesium, thus rendering the waters unsuitable for irrigation without treatment. USGS studies have examined the environmental impacts of different disposal options. Results indicated that infiltration impoundments had the potential to contaminate underlying fresh groundwater supplies, but that with specific treatment the produced waters could be used in subsurface drip irrigation operations that minimized potential for groundwater contamination and provided beneficial use of the waters to enhance agricultural production in this semiarid region.

Other Departmental programs and activities relate directly to the energy-water nexus, including hydropower development, water treatment and desalination, pumping and water delivery, BLM energy permitting, and USGS research on energy resources and induced seismicity. We are happy to provide the Committee with additional information on these programs as needed.

S. 1971, NEXUS OF ENERGY AND WATER FOR SUSTAINABILITY
ACT OF 2014

Section 3 of S. 1971 requires the Director of the Office of Science and Technology Policy to establish either a Committee or Subcommittee on Energy-Water Nexus for Sustainability under the NSTC, co-chaired by the Secretary of Energy and Secretary of the Interior. The Committee or Subcommittee is directed to: (1) serve as a forum for developing common federal goals and plans on energy-water nexus issues; (2) promote coordination of the related activities of several federal departments and agencies identified in the bill; (3) coordinate and develop capabilities for data collection, categorization, and dissemination of data from

and to other federal departments and agencies; and (4) engage in information exchange between federal departments and agencies.

Section 4 of S. 1971 requires the Director of the Office of Management and Budget to submit to Congress a report that includes an interagency budget crosscut that: (1) displays the budget proposed for the upcoming fiscal year, including any interagency or intra-agency transfer, for each of the federal agencies that carry out energy-water nexus projects and (2) identifies all federal and state expenditures since 2011 on energy-water nexus projects. The report to Congress would also provide a detailed accounting of all funds received and obligated by all Federal and State agencies with energy-water implementation responsibilities during the previous fiscal year and list all energy-water nexus projects to be undertaken in the upcoming fiscal year, with the federal portion of funds for those projects.

The Department appreciates the Committee's leadership and the opportunity to strengthen capabilities to address the energy-water nexus. Given the breadth and many facets of this issue, we support close collaboration with the DOE and other Federal agencies. Moving forward, we would like to continue working with the Committee on preliminary concerns regarding the details of the collaborative structure and reporting provisions on issues related to the nexus of energy and water. The Department supports interagency collaboration and information sharing to support sound decision-making, leverage resources, and reduce duplication. But, the Administration believes this can be done through more effective and efficient collaboration and program management, rather than an unduly and potentially ineffective reporting requirement.

If enacted, it is the Department's view that the committee or subcommittee created under S. 1971 should focus its attention on key vulnerabilities where there is an appropriate federal role and capability to have a positive impact. It is the Department's view that that focus should be on data gaps associated with water use and availability.

Water availability, severe drought, and long-term climate trends have always posed a significant risk to energy development and electric generation. This is one of the broad, systemic risks at the core of the energy-water nexus. Decreased water availability, prolonged drought, and more pronounced climate trends could increase that risk and require the use of accelerated adaptation strategies.

The Department supports the type of coordination and data exchange encouraged under S. 1971 and is already undertaking a number of steps to do so as discussed in the testimony above. Such efforts could help close existing gaps, increasing our understanding of water supply availability to benefit water and energy decision makers.

If enacted, S. 1971 may present challenges to the Department. The Department would need to evaluate wheth-

er the commitments and reporting requirements in the bill may require additional resources to carry them out. Additionally, while S. 1971 allows for the coordination of federal activities, the Department would like to stress the importance of providing the scientific community with autonomy to design and execute studies. Finally, States play the key role in allocating and administering water, and they must be a partner in energy-water efforts. S. 1971 does not address the important relationships with states and the private sector, where significant work on energy-water nexus projects is accomplished. Finally, as drafted, it is unclear to the Department what qualifies as an “energy-water nexus project” under S. 1971.

CONCLUSION

In conclusion, the Department shares the Committee’s goals to promote coordination between Federal agencies as it relates to the energy-water nexus. We appreciate the leadership of this Committee in engaging Federal agencies. The Department has numerous programs in place that encourage coordination not only within the Federal Government, but as public-private partnerships. The Federal Government has a role in providing leadership and tools to address the challenges of imbalance between supply and demand. Sustainable water supplies and energy use are important parts of a stable economic base, employment continuity, and smart growth. I would be pleased to answer any questions the Subcommittee may have.

CHANGES IN EXISTING LAW

In compliance with paragraph 12 of rule XXVI of the Standing Rules of the Senate, the changes in existing law made by S. 2799, as reported, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new matter is printed in italic, existing law in which no change is proposed is shown in roman):

ENERGY POLICY ACT OF 2005

Public Law 109–58, as Amended

* * * * *

SECTION 1.—SHORT TITLE; TABLE OF CONTENTS.

* * * * *

(b) TABLE OF CONTENTS.—The table of contents of this Act is as follows:

* * * * *

TITLE IX—RESEARCH AND DEVELOPMENT

* * * * *

SUBTITLE A—ENERGY EFFICIENCY

- Sec. 911. Energy efficiency.
- Sec. 912. Next Generation Lighting Initiative.
- Sec. 913. National Building Performance Initiative.
- Sec. 914. Building standards.
- Sec. 915. Secondary electric vehicle battery use program.

Sec. 916. Energy Efficiency Science Initiative.
 Sec. 917. Advanced Energy Efficiency Technology Transfer Centers.
 Sec. 918. *Smart energy and water efficiency pilot program.*

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TITLE IX—RESEARCH AND DEVELOPMENT

* * * * *

SUBTITLE A—ENERGY EFFICIENCY

* * * * *

SEC. 917. ADVANCED ENERGY TECHNOLOGY TRANSFER CENTERS.

* * * * *

(f) DURATION.—

(1) INITIAL GRANT PERIOD.—A grant awarded under this section shall be for a period of 5 years.

(2) INITIAL EVALUATION.—Each grantee under this section shall be evaluated during its third year of operation under procedures established by the Secretary to determine if the grantee is accomplishing the purposes of this section described in subsection (a). The Secretary shall terminate any grant that does not receive a positive evaluation. If an evaluation is positive, the Secretary may extend the grant for 3 additional years beyond the original term of the grant.

(3) ADDITIONAL EXTENSION.—If a grantee receives an extension under paragraph (2), the grantee shall be evaluated again during the second year of the extension. The Secretary shall terminate any grant that does not receive a positive evaluation. If an evaluation is positive, the Secretary may extend the grant for a final additional period of 3 additional years beyond the original extension.

(4) LIMITATION.—No grantee may receive more than 11 years of support under this section without reapplying for support and competing against all other applicants seeking a grant at that time.

(g) PROHIBITION.—None of the funds awarded under this section may be used for the construction of facilities.

(h) DEFINITIONS.—For purposes of this section:

(1) ADVANCED ENERGY METHODS AND TECHNOLOGIES.—The term “advanced energy methods and technologies” means all methods and technologies that promote energy efficiency and conservation, including distributed generation technologies, and life-cycle analysis of energy use.

(2) CENTER.—The term “Center” means an Advanced Energy Technology Transfer Center established pursuant to this section.

(3) DISTRIBUTED GENERATION.—The term “distributed generation” means an electric power generation technology, including photovoltaic, small wind, and micro-combined heat and power, that serves electric consumers at or near the site of production.

(4) COOPERATIVE EXTENSION.—The term “Cooperative Extension” means the extension services established at the land-

grant colleges and universities under the Smith-Lever Act of May 8, 1914.

(5) LAND-GRANT COLLEGES AND UNIVERSITIES.—The term “land-grant colleges and universities” means—

(A) 1862 Institutions (as defined in section 2 of the Agricultural Research, Extension, and Education Reform Act of 1998 (7 U.S.C. 7601));

(B) 1890 Institutions (as defined in section 2 of that Act); and

(C) 1994 Institutions (as defined in section 2 of that Act).

(i) AUTHORIZATION OF APPROPRIATIONS.—In addition to amounts otherwise authorized to be appropriated in section 911, there are authorized to be appropriated for the program under this section such sums as may be appropriated.

SEC. 918. SMART ENERGY AND WATER EFFICIENCY PILOT PROGRAM.

(a) DEFINITIONS.—*In this section:*

(1) ELIGIBLE ENTITY.—*The term ‘eligible entity’ means—*

(A) a utility;

(B) a municipality;

(C) a water district;

(D) an Indian tribe or Alaska Native village; and

(E) any other authority that provides water, wastewater, or water reuse services.

(2) SMART ENERGY AND WATER EFFICIENCY PILOT PROGRAM.—*The term ‘smart energy and water efficiency pilot program’ or ‘pilot program’ means the pilot program established under subsection (b).*

(b) SMART ENERGY AND WATER EFFICIENCY PILOT PROGRAM.—

(1) IN GENERAL.—*The Secretary shall establish and carry out a smart energy and water efficiency pilot program in accordance with this section.*

(2) PURPOSE.—*The purpose of the smart energy and water efficiency pilot program is to award grants to eligible entities to demonstrate unique, advanced, or innovative technology-based solutions that will—*

(A) improve the net energy balance of water, wastewater, and water reuse systems;

(B) improve the net energy balance of water, wastewater, and water reuse systems to help communities across the United States make measurable progress in conserving water, saving energy, and reducing costs;

(C) support the implementation of innovative and unique processes and the installation of established advanced automated systems that provide real-time data on energy and water; and

(D) improve energy-water conservation and quality and predictive maintenance through technologies that utilize internet connected technologies, including sensors, intelligent gateways, and security embedded in hardware.

(3) PROJECT SELECTION.—

(A) IN GENERAL.—*The Secretary shall make competitive, merit-reviewed grants under the pilot program to not less than 3, but not more than 5, eligible entities.*

(B) *SELECTION CRITERIA.*—*In selecting an eligible entity to receive a grant under the pilot program, the Secretary shall consider—*

- (i) *energy and cost savings;*
- (ii) *the uniqueness, commercial viability, and reliability of the technology to be used;*
- (iii) *the degree to which the project integrates next-generation sensors software, analytics, and management tools;*
- (iv) *the anticipated cost-effectiveness of the pilot project through measurable energy savings, water savings or reuse, and infrastructure costs averted;*
- (v) *whether the technology can be deployed in a variety of geographic regions and the degree to which the technology can be implemented in a wide range of applications ranging in scale from small towns to large cities, including tribal communities;*
- (vi) *whether the technology has been successfully deployed elsewhere;*
- (vii) *whether the technology was sourced from a manufacturer based in the United States; and (viii) whether the project will be completed in 5 years or less.*

(C) *APPLICATIONS.*—

(i) *IN GENERAL.*—*Subject to clause (ii), an eligible entity seeking a grant under the pilot program shall submit to the Secretary an application at such time, in such manner, and containing such information as the Secretary determines to be necessary.*

(ii) *CONTENTS.*—*An application under clause (i) shall, at a minimum, include—*

- (I) *a description of the project;*
- (II) *a description of the technology to be used in the project;*
- (III) *the anticipated results, including energy and water savings, of the project;*
- (IV) *a comprehensive budget for the project;*
- (V) *the names of the project lead organization and any partners;*
- (VI) *the number of users to be served by the project;*
- (VII) *a description of the ways in which the proposal would meet performance measures established by the Secretary; and*
- (VIII) *any other information that the Secretary determines to be necessary to complete the review and selection of a grant recipient.*

(4) *ADMINISTRATION.*—

(A) *IN GENERAL.*—*Not later than 1 year after the date of enactment of this section, the Secretary shall select grant recipients under this section.*

(B) *EVALUATIONS.*—

(i) *ANNUAL EVALUATIONS.*—*The Secretary shall annually carry out an evaluation of each project for which a grant is provided under this section that meets performance measures and benchmarks developed by*

the Secretary, consistent with the purposes of this section.

(ii) REQUIREMENTS.—Consistent with the performance measures and benchmarks developed under clause (i), in carrying out an evaluation under that clause, the Secretary shall—

(I) evaluate the progress and impact of the project; and

(II) assesses the degree to which the project is meeting the goals of the pilot program.

(C) TECHNICAL AND POLICY ASSISTANCE.—On the request of a grant recipient, the Secretary shall provide technical and policy assistance.

(D) BEST PRACTICES.—The Secretary shall make available to the public through the Internet and other means the Secretary considers to be appropriate—

(i) a copy of each evaluation carried out under subparagraph (B); and

(ii) a description of any best practices identified by the Secretary as a result of those evaluations.

(E) REPORT TO CONGRESS.—The Secretary shall submit to Congress a report containing the results of each evaluation carried out under subparagraph (B).

(c) FUNDING.—The Secretary shall use funds made available to the Secretary and not otherwise obligated to carry out this section.

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