111TH CONGRESS
1ST SESSION

S. 1035

To enhance the ability of drinking water utilities in the United States to develop and implement climate change adaptation programs and policies, and for other purposes.

IN THE SENATE OF THE UNITED STATES

MAY 13, 2009

Mr. REID (for himself, Mrs. FEINSTEIN, and Mrs. BOXER) introduced the following bill; which was read twice and referred to the Committee on Environment and Public Works

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A BILL

To enhance the ability of drinking water utilities in the United States to develop and implement climate change adaptation programs and policies, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the ''Drinking Water Adaptation, Technology, Education, and Research (WATER) Act''.

SEC. 2. FINDINGS.

Congress finds that—

(1) the consensus among climate scientists is overwhelming that climate change is occurring more rapidly than can be attributed to natural causes, and that significant impacts to the water supply are already occurring;

(2) among the first and most critical of those impacts will be change to patterns of precipitation around the world, which will affect water availability for the most basic drinking water and domestic water needs of populations in many areas of the United States;

(3) drinking water utilities throughout the United States, as well as those in Europe, Australia, and Asia, are concerned that extended changes in precipitation will lead to extended droughts;

(4) supplying water is highly energy-intensive and will become more so as climate change forces more utilities to turn to alternative supplies;

(5) energy production consumes a significant percentage of the fresh water resources of the United States;

(6) since 2003, the drinking water industry of the United States has sponsored, through a non-profit water research foundation, various studies to

assess the impacts of climate change on drinking water supplies;

(7) those studies demonstrate the need for a comprehensive program of research into the full range of impacts on drinking water utilities, including impacts on water supplies, facilities, and customers;

(8) that nonprofit water research foundation is also coordinating internationally with other drinking water utilities on shared research projects and has hosted international workshops with counterpart European and Asian water research organizations to develop a unified research agenda for applied research on adaptive strategies to address climate change impacts;

(9) research data in existence as of the date of enactment of this Act—

(A) summarize the best available scientific evidence on climate change;

(B) identify the implications of climate change for the water cycle and the availability and quality of water resources; and

(C) provide general guidance on planning and adaptation strategies for water utilities; and

(10) given uncertainties about specific climate changes in particular areas, drinking water utilities need to prepare for a wider range of likely possibilities in managing and delivery of water.

SEC. 3. RESEARCH ON THE EFFECTS OF CLIMATE CHANGE ON DRINKING WATER UTILITIES.

(a) IN GENERAL.—The Administrator of the Environmental Protection Agency, in cooperation with the Secretary of Commerce, the Secretary of Energy, and the Secretary of the Interior, shall establish and provide funding for a program of directed and applied research, to be conducted through a nonprofit drinking water research foundation and sponsored by water utilities, to assist the utilities in adapting to the effects of climate change.

(b) RESEARCH AREAS.—The research conducted in accordance with subsection (a) shall include research into—

(1) water quality impacts and solutions, including research—

(A) to address probable impacts on raw water quality resulting from—

(i) erosion and turbidity from extreme precipitation events;

(ii) watershed vegetation changes; and

(iii) increasing ranges of pathogens, algae, and nuisance organisms resulting from warmer temperatures; and

(B) on mitigating increasing damage to watersheds and water quality by evaluating extreme events, such as wildfires and hurricanes, to learn and develop management approaches to mitigate—

(i) permanent watershed damage;

(ii) quality and yield impacts on source waters; and

(iii) increased costs of water treatment;

(2) impacts on groundwater supplies from carbon sequestration, including research to evaluate potential water quality consequences of carbon sequestration in various regional aquifers, soil conditions, and mineral deposits;

(3) water quantity impacts and solutions, including research—

(A) to evaluate climate change impacts on water resources throughout hydrological basins of the United States;

(B) to improve the accuracy and resolution of climate change models at a regional level;

(C) to identify and explore options for increasing conjunctive use of aboveground and underground storage of water; and

(D) to optimize operation of existing and new reservoirs in diminished and erratic periods of precipitation and runoff;

(4) infrastructure impacts and solutions for water treatment and wastewater treatment facilities and underground pipelines, including research—

(A) to evaluate and mitigate the impacts of sea level rise on—

(i) near-shore facilities;

(ii) soil drying and subsidence;

(iii) reduced flows in water and wastewater pipelines; and

(iv) extreme flows in wastewater systems; and

(B) on ways of increasing the resilience of existing infrastructure, planning cost-effective responses to adapt to climate change, and developing new design standards for future infrastructure that include the use of energy conservation measures and renewable energy in new construction to the maximum extent practicable;

(5) desalination, water reuse, and alternative supply technologies, including research—

(A) to improve and optimize existing membrane technologies, and to identify and develop breakthrough technologies, to enable the use of seawater, brackish groundwater, treated wastewater, and other impaired sources;

(B) into new sources of water through more cost-effective water treatment practices in recycling and desalination; and

(C) to improve technologies for use in—

(i) managing and minimizing the volume of desalination and reuse concentrate streams; and

(ii) minimizing the environmental impacts of seawater intake at desalination facilities;

(6) energy efficiency and greenhouse gas minimization, including research—

(A) on optimizing the energy efficiency of water supply and wastewater operations and improving water efficiency in energy production and management; and

(B) to identify and develop renewable, carbon-neutral energy options for the water supply and wastewater industry;

(7) regional and hydrological basin cooperative water management solutions, including research into—

(A) institutional mechanisms for greater regional cooperation and use of water exchanges, banking, and transfers; and

(B) the economic benefits of sharing risks of shortage across wider areas;

(8) utility management, decision support systems, and water management models, including research—

(A) into improved decision support systems and modeling tools for use by water utility managers to assist with increased water supply uncertainty and adaptation strategies posed by climate change;

(B) to provide financial tools, including new rate structures, to manage financial resources and investments, because increased conservation practices may diminish revenue and increase investments in infrastructure; and

(C) to develop improved systems and models for use in evaluating—

(i) successful alternative methods for conservation and demand management; and

(ii) climate change impacts on groundwater resources;

(9) reducing greenhouse gas emissions and improving energy demand management, including research to improve energy efficiency in water collection, production, transmission, treatment, distribution, and disposal to provide more sustainability and means to assist drinking water utilities in reducing the production of greenhouse gas emissions in the collection, production, transmission, treatment, distribution, and disposal of drinking water;

(10) water conservation and demand management, including research—

(A) to develop strategic approaches to water demand management that offer the lowest-cost, noninfrastructural options to serve growing populations or manage declining supplies, primarily through—

(i) efficiencies in water use and reallocation of the saved water;

(ii) demand management tools;

(iii) economic incentives; and

(iv) water-saving technologies; and

(B) into efficiencies in water management through integrated water resource management that incorporates—

(i) supply-side and demand-side processes;

(ii) continuous adaptive management; and

(iii) the inclusion of stakeholders in decisionmaking processes; and

(11) communications, education, and public acceptance, including research—

(A) into improved strategies and approaches for communicating with customers, decisionmakers, and other stakeholders about the implications of climate change on water supply and water management;

(B) to develop effective communication approaches—

(i) to gain public acceptance of alternative water supplies and new policies and practices, including conservation and demand management; and

(ii) to gain public recognition and acceptance of increased costs; and

(C) to create and maintain a clearinghouse of climate change information for water utilities, academic researchers, stakeholders, government agencies, and research organizations.

(c) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to carry out this section $25,000,000 for each of fiscal years 2010 through 2020.

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