

Calendar No. 1058

110TH CONGRESS
2D SESSION

S. 2970

[Report No. 110-487]

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 2, 2008

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

SEPTEMBER 24 (legislative day, SEPTEMBER 17), 2008

Reported by Mrs. BOXER, without amendment

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.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

1 **SECTION 1. SHORT TITLE.**

2 This Act may be cited as the “Climate Change Drink-
3 ing Water Adaptation Research Act.”.

4 **SEC. 2. FINDINGS.**

5 Congress finds that—

6 (1) the consensus among climate scientists is
7 overwhelming that climate change is occurring more
8 rapidly than can be attributed to natural causes, and
9 that significant impacts to the water supply are al-
10 ready occurring;

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

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

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

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

1 (6) since 2003, the drinking water industry of
2 the United States has sponsored, through a non-
3 profit water research foundation, various studies to
4 assess the impacts of climate change on drinking
5 water supplies;

11 (8) that nonprofit water research foundation is
12 also coordinating internationally with other drinking
13 water utilities on shared research projects and has
14 hosted international workshops with counterpart Eu-
15 ropean and Asian water research organizations to
16 develop a unified research agenda for applied re-
17 search on adaptive strategies to address climate
18 change impacts;

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

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

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

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

4 (10) given uncertainties about specific climate
5 changes in particular areas, drinking water utilities
6 need to prepare for a wider range of likely possibili-
7 ties in managing and delivery of water.

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

10 (a) IN GENERAL.—The Administrator of the Envi-
11 ronmental Protection Agency, in cooperation with the Sec-
12 retary of Commerce, the Secretary of Energy, and the Sec-
13 retary of the Interior, shall establish and provide funding
14 for a program of directed and applied research, to be con-
15 ducted through a nonprofit water research foundation and
16 sponsored by drinking water utilities, to assist suppliers
17 of drinking water in adapting to the effects of climate
18 change.

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

22 (1) water quality impacts and solutions, includ-
23 ing research—

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

- 1 (i) erosion and turbidity from extreme
- 2 precipitation events;

3 (ii) watershed vegetation changes; and
4 (iii) increasing ranges of pathogens,
5 algae, and nuisance organisms resulting
6 from warmer temperatures; and

7 (B) on mitigating increasing damage to
8 watersheds and water quality by evaluating ex-
9 treme events, such as wildfires and hurricanes,
10 to learn and develop management approaches to
11 mitigate—

12 (i) permanent watershed damage;
13 (ii) quality and yield impacts on
14 source waters; and
15 (iii) increased costs of water treat-
16 ment;

17 (2) impacts on groundwater supplies from car-
18 bon sequestration, including research to evaluate po-
19 tential water quality consequences of carbon seque-
20 stration in various regional aquifers, soil conditions,
21 and mineral deposits;

22 (3) water quantity impacts and solutions, in-
23 cluding research—

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

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

6 (C) to identify and explore options for in-
7 creasing conjunctive use of aboveground and
8 underground storage of water; and

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

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

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

17 (j) near-shore facilities;

(ii) soil drying and subsidence; and

19 (iii) reduced flows in water and waste-
20 water pipelines; and

(B) on ways of increasing the resilience of existing infrastructure and development of new design standards for future infrastructure;

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

1 (A) to improve and optimize existing mem-
2 brane technologies, and to identify and develop
3 breakthrough technologies, to enable the use of
4 seawater, brackish groundwater, treated waste-
5 water, and other impaired sources;

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

9 (C) to improve technologies for use in—

10 (i) managing and minimizing the volume of desalination and reuse concentrate
11 streams; and
12

13 (ii) minimizing the environmental im-
14 pacts of seawater intake at desalination fa-
15 cilities;

16 (6) energy efficiency and greenhouse gas mini-
17 mization, including research—

18 (A) on optimizing the energy efficiency of
19 water supply and improving water efficiency in
20 energy production; and

21 (B) to identify and develop renewable, car-
22 bon-neutral energy options for the water supply
23 industry;

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

4 (A) institutional mechanisms for greater
5 regional cooperation and use of water ex-
6 changes, banking, and transfers; and

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

9 (8) utility management, decision support sys-
10 tems, and water management models, including re-
11 search—

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

17 (B) to provide financial tools, including
18 new rate structures, to manage financial re-
19 sources and investments, because increased con-
20 servation practices may diminish revenue and
21 increase investments in infrastructure; and

22 (C) to develop improved systems and mod-
23 els for use in evaluating—

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

4 (ii) climate change impacts on
5 groundwater resources;

6 (9) reducing greenhouse gas emissions and en-
7 ergy demand management, including research to im-
8 prove energy efficiency in water collection, produc-
9 tion, transmission, treatment, distribution, and dis-
10 posal to provide more sustainability and means to
11 assist drinking water utilities in reducing the pro-
12 duction of greenhouse gas emissions in the collec-
13 tion, production, transmission, treatment, distribu-
14 tion, and disposal of drinking water;

15 (10) water conservation and demand manage-
16 ment, including research—

17 (A) to develop strategic approaches to
18 water demand management that offer the low-
19 est-cost, noninfrastructural options to serve
20 growing populations or manage declining sup-
21 plies, primarily through—

22 (i) efficiencies in water use and re-
23 allocation of the saved water;

24 (ii) demand management tools;

25 (iii) economic incentives; and

(iv) water-saving technologies; and

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

5 (i) supply-side and demand-side proc-
6 esses;

7 (ii) continuous adaptive management;
8 and

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

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

13 (A) into improved strategies and ap-
14 proaches for communicating with customers, de-
15 cisionmakers, and other stakeholders about the
16 implications of climate change on water supply;
17 and

18 (B) to develop effective communication ap-
19 proaches to gain—

20 (i) public acceptance of alternative
21 water supplies and new policies and prac-
22 tices, including conservation and demand
23 management; and

24 (ii) public recognition and acceptance
25 of increased costs.

1 (c) AUTHORIZATION OF APPROPRIATIONS.—There is
2 authorized to be appropriated to carry out this section
3 \$25,000,000 for each of fiscal years 2009 through 2019.

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