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104TH CONGRESS, *2d Session* | SENATE | REPORT 104–254

WATER DESALINIZATION RESEARCH AND DEVELOPMENT ACT OF 1996

APRIL 18, 1996.—Ordered to be printed

Mr. CHAFEE, from the Committee on Environment and Public Works, submitted the following

REPORT

[To accompany S. 811]

The Committee on Environment and Public Works, to which was referred the bill (S. 811) to authorize research into the desalinization and reclamation of water and to authorize a program for States, cities, or qualifying agencies desiring to own and operate a water desalinization or reclamation facility or to develop such facilities, having considered the same, reports favorably thereon with an amendment and recommends that the bill, as amended, do pass.

GENERAL STATEMENT

This legislation authorizes an expanded United States research and development program to produce lower-cost desalinization technologies; designates the primary program responsibility to the Department of the Interior (DOI), in coordination with the Department of the Army (DOA); authorizes a basic research and development program to be conducted by the DOI and the DOA; authorizes development of experimental desalinization facilities; requires the Agency for International Development to host a conference for countries either currently using or planning to use desalinization technologies; and requires the Secretary of the Interior, in consultation with the Secretary of the Army, to report yearly on the progress made in desalinization technology as a result of this legislation, as well as the agencies' plans for the following year.

BACKGROUND

The history of the Federal Government's involvement in desalinization dates back several decades. In the 1950s and 1960s, consid-

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erable effort and resources were devoted to research and development of desalinization technology, particularly during the Kennedy Administration. According to a 1988 report by the Office of Technology Assessment, U.S. industry was generally considered to be at the forefront of desalinization technology throughout the 1960s and into the 1970s. When governmental support for this technology was eliminated during the 1970s, however, Japanese and European firms, some of which were supported by their respective governments, began obtaining contracts that previously would have been awarded to American firms.

In the face of growing domestic water shortages, as well as strategic international concerns, the United States should renew its commitment to developing this key technology and once again move the United States into the forefront of desalinization technology development.

GENERAL DISCUSSION

As the U.S. population shifts and grows, the need for developing cost-effective desalinization technologies becomes even more urgent. The most recent census data shows rapid growth in suburban areas throughout the United States. These areas are not simply becoming larger population centers, but centers of commerce and culture as well. Many demographers, reviewing the census data and the trends the data suggest, predict that the most significant constraint to the economic development of these new suburban centers will be the availability of water. Reservoirs previously devoted to meeting the needs of urban areas will not be able to meet the new, competing demands from the growing suburbs.

Developing cost-effective, desalinization facilities for cities may well become critical to meeting the economic needs of suburbs throughout the Nation over the next few decades. Much of the growth is occurring near the coasts. Fortunately, one of the few places we can get additional water resources is from the ocean. California, with 840 miles of coastline, periodically faces serious water shortages. Florida, with 1,800 miles of coastline, is facing increasing demands for water. The aquifers currently supplying Long Island's water needs are beginning to suffer salt water intrusion.

Around the world, the arguments for further development of desalinization technology are equally compelling. In the Middle East and northern Africa, all available fresh surface and groundwater supplies are near full utilization, yet the predicament has received little attention. Water also has been an important consideration in the Middle East peace negotiations because of the existence of an aquifer that lies under the West Bank which supplies between 25 to 40 percent of Israel's water.

A February 1994 World Bank study of water use trends in Israel, the West Bank and Jordan states: the need for significant quantities of desalinated water will rise in 2010. The period until that time will allow for development of technological solutions.

Mauritania, a country in Northern Africa, grows only 8 percent of its food because of inadequate water resources, yet it borders the Atlantic Ocean. The population of Egypt is growing and its water resources are diminishing, yet it is located on the Mediterranean

Sea. Namibia faces serious water shortages in southern Africa and it is on the ocean.

In 1990, about 60 percent of all available fresh water in Mexico was depleted. In 2000, this percentage is expected to increase to 85 percent. Water supply, both quantity and quality, will become one of Mexico's primary national problems in the near future.

There are already water supply deficits and water quality problems in large cities and small towns. In addition, information on underground water availability is incomplete. The use of desalinated sea water would go a long way toward meeting the needs of these water deficient areas.

Additional benefits to be obtained from further desalinization research are: reduction in the energy requirements for desalinating; wider practice of water reclamation and reuse; cost reduction in the removal of hazardous pollutants from ground and surface water; and decreased cost burden in complying with existing statutes.

In 1961, President Kennedy stated:

> * * * if we could ever competitively, at a cheap rate, get fresh water from salt water, * * * (this) would be in the long-range interests of humanity which would really dwarf any other scientific accomplishments.

Those words are still true today. The reasons are compelling. The situation is clear and the time for action is now. Substantial Federal resources need to be dedicated to this important technology.

SECTION-BY-SECTION ANALYSIS

Section 1. Short title

Section 1 states that the legislation may be cited as the "Water Desalinization Research and Development Act of 1996".

Section 2. Declaration of policy

Section 2 states that it is the policy of the United States to perform research and to develop low-cost alternatives in the desalinization and reuse of saline or biologically impaired water to provide water of suitable quality.

Section 3. Definitions

Section 3 defines the following terms for purposes of this legislation: desalinization, nonusable nonsaline water, reclamation, saline water, sponsor, United States, and usable water.

Section 4. Research and Development

Section 4 gives primary responsibility for management and oversight for the research and development program to the Secretary of the Interior and directs the Secretary to coordinate activities with the Secretary of the Army.

Currently, no coordination exists among the Federal agencies involved in desalinization research and development and construction. Centralized responsibility will help both the Federal government and the private sector avoid duplication and advance the U.S. desalinization market and application of this technology.

The Department of the Interior and its Bureau of Reclamation have a history and expertise in desalinization, making it the appro-

priate agency to lead this effort. As home of the original Federal desalinization programs, the Department of the Interior has retained many employees from the Office of Saline Water and later the Office of Water and Research Technology. As the only Federal agency whose mission is to deal with national water supply, the Bureau's water conservation program plans for encouraging coastal communities to develop adequate local water supplies to reduce their dependence upon imported inland water are important to build upon.

The Secretary of the Interior is to develop a management plan for promoting fundamental scientific research into the best and most economical processes and methods for converting saline water into fresh water. In addition, methods for the recovery of byproducts resulting from desalination are to be studied.

The agencies are to use industrial or engineering firms, Federal laboratories, and educational institutions to conduct research and are encouraged to seek out and award grants to small inventors, in addition to universities and companies. Individual inventors and small organizations are valuable partners to have in promoting the goals of this legislation.

Section 5. Desalinization Development Program

Section 5 creates the Desalinization Development Program. The program shall be administered jointly by the Secretary of the Interior and the Secretary of the Army. Interested parties shall submit applications for approval for desalinization projects and certify that they can provide at least 25 percent of the initial cost of the facility. Initial costs shall include design costs, construction costs, lands, easements, and rights-of-way costs, and relocation costs. A sponsor may pay up to 50 percent of the initial cost of the facility, but the initial cost may not exceed $10,000,000. The operation, maintenance, repair, and rehabilitation of the facility shall be the responsibility of the sponsor, who shall retain all revenue generated from the sale of the usable water.

This section recognizes the necessity for establishing a demonstration/construction program for desalinization research. When fundamental research produces new ideas and technologies, it needs to be demonstrated that the new process or technology is safe and reliable.

In addition, spending caps are included to ensure that the funds appropriated by this legislation are not concentrated in a single project or a select few.

Because there are established relationships in different regions of the country with the Bureau of Reclamation and the Army Corps of Engineers, this section allows sponsors the flexibility of submitting proposals to either agency.

Section 6. Miscellaneous authorities

Section 6 grants further authorities to the Secretary of the Interior and the Secretary of the Army to carry out this Act, including: accepting technical and administrative assistance from a State or other public entities and from private entities; acquiring processes, data, inventions, patents, lands, and other properties; assembling

scientific literature; and conducting conferences relating to the desalinization of water.

Section 7. Desalinization conference

Section 7 instructs the Agency on International Development to sponsor an international desalinization conference within 12 months of the date of enactment of this Act. Conference participants should include scientists, private industry experts, desalinization experts and operators, and government officials. Participants should be from countries that use and conduct desalinization and from those countries that could benefit from low-cost desalinization technology. The purpose of the conference is to explore new technologies and methods to make desalinization a reality.

Section 8. Reports

Section 8 directs the Secretary of the Interior, in consultation with the Secretary of the Army, to prepare an annual report to the President and to Congress on the actions taken during that year and the actions planned for the next year concerning the administration of this Act. In a further effort to avoid duplication, the report should provide information on desalinization activities being carried out in other agencies, but not authorized by this Act. Including this information will help identify where Federal resources should be directed.

Section 9. Authorization for appropriations

Section 9 authorizes an increasing annual appropriation for basic research and development as well as a separate authorization for contributions to the construction of projects. For basic research and development, $5,000,000 is authorized in fiscal year 1997, and $7,500,000 in each of fiscal years 1998 through 2001.

For the Desalinization Development Program, a total of $40,000,000 is authorized for fiscal years 1997 through 2001. Appropriations are to be made available in equal amounts to the Department of the Interior and the civil works program of the Army Corps of Engineers.

HEARINGS

No hearings were held on the bill.

ROLLCALL VOTES

Section 7(b) of rule XXVI of the Standing Rules of the Senate and the rules of the Committee on Environment and Public Works require that any rollcall votes taken during consideration of legislation be noted in the report on that legislation.

At the business meeting of the Committee on Environment and Public Works on March 28, 1996, the bill S. 811 was amended and ordered to be reported favorably by voice vote. No rollcall vote was taken.

REGULATORY IMPACT

In compliance with Section 11(b) of rule XXVI of the Standing Rules of the Senate, the Committee makes the following evaluation of the regulatory impact of the bill.

The bill does not create any additional regulatory burdens.

COST OF LEGISLATION

Section 403 of the Congressional Budget and Impoundment Control Act requires that a statement of the cost of the reported bill, prepared by the Congressional Budget Office, be included in the report. That statement follows:

U.S. CONGRESS,
CONGRESSIONAL BUDGET OFFICE,
Washington, DC, April 17, 1996.

Hon. JOHN H. CHAFEE,
Chairman, Committee on Environment and Public Works, U.S. Senate, Washington, DC.

DEAR MR. CHAIRMAN: The Congressional Budget Office has prepared the enclosed cost estimate for S. 811, the Water Desalinization Research and Development Act of 1996.

Enactment of S. 811 would not affect direct spending or receipts. Therefore, pay-as-you-go procedures would not apply to the bill.

If you wish further details on this estimate, we will be pleased to provide them.

Sincerely,

JUNE E. O'NEILL.

CONGRESSIONAL BUDGET OFFICE COST ESTIMATE

1. Bill number: S. 811.

2. Bill title: Water Desalinization Research and Development Act of 1996.

3. Bill status: As ordered reported by the Senate Committee on Environment and Works on March 28, 1996.

4. Bill purpose: S. 811 would authorize the Secretary of the Interior, in coordination with the Secretary of the Army, to:

conduct research and development to determine the most efficient means of converting saline water into usable water; and

establish a desalinization development program. Local, State, or interstate agency sponsors would pay at least 25 percent of the initial cost of facilities constructed under the desalinization development program. They also would be responsible for operating and maintaining the facilities and would retain all revenue generated by the sale of usable water.

The bill also would require the Agency for International Development (AID) to sponsor an international desalinization conference within 12 months of the bill's enactment.

5. Estimated cost to the Federal Government: Assuming appropriation of the amounts authorized by the bill, CBO estimates that enacting S. 811 would result in new discretionary spending totaling $52 million the 1996–2000 period. Additional spending of $23 million would occur after 2000 from amounts authorized by the bill. Outlays are estimated based on historical spending rates for simi-

lar programs. There is no funding under current law for the programs that would be authorized by S. 811.

[By fiscal year, in millions of dollars]

,	1996	1997	1998	1999	2000
Spending subject to appropriations action:					
Estimated authorization level	0	13	16	16	16
Estimated outlays	0	7	14	15	16

The costs of this bill fall within budget function 300.

6. Basis of estimate: For research and development activities, the bill would authorize appropriations of $5 million for fiscal year 1997, and $1.5 million for each of fiscal years 1998–2001. The bill would authorize $40 million over fiscal years 1997 through 2001 for the desalinization development program. For purposes of this estimate, we assume that funding for the desalinization program would be about $8 million each year over the 1997–2001 period.

The bill also would require AID to hold an international desalinization conference and to pay for it with existing funds. CBO estimates that cost of the conference would be less than $500,000, which would be spent mostly in fiscal year 1997.

7. Pay-as-you-go considerations: None.

8. Estimated impact on State, local, and tribal governments: The bill contains no intergovernmental mandates as defined in Public Law 104–4, and would impose no new direct costs on State, local, or tribal governments.

Water agencies that apply for and receive assistance under this program would be required to pay at least 25 percent of the initial design and construction costs of a desalinization facility. Assuming appropriations total $40 million for fiscal years 1997 through 2001, local, State, and interstate water agencies would contribute at least $13 million toward these costs over the same period. Federal contributions would be capped at $10 million per facility. Water agencies would be required to pay all the costs of operating, maintaining, and repairing the facilities and would retain all revenues from the sale of usable water.

9. Estimated impact on the private sector: None.

10. Previous CBO estimate: None.

11. Estimate prepared by: Federal cost estimate—Gary Brown and Joseph Whitehill; State and local impacts—Pepper Santalucia; private sector impacts—Amy Downs.

12. Estimate approved by: Robert R. Sunshine, for Paul N. Van de Water, Assistant Director for Budget Analysis.

CHANGES IN EXISTING LAW

In compliance with section 12 of rule XXVI of the Standing Rules of the Senate, changes to existing law must be shown if applicable. No change to existing law would occur with passage of this legislation.

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