

## Calendar No. 256

110TH CONGRESS }  
1st Session }

SENATE

{ REPORT  
{ 110-122

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### MORE WATER AND MORE ENERGY ACT OF 2007

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JUNE 28, 2007.—Ordered to be printed

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Mr. BINGAMAN, from the Committee on Energy and Natural Resources, submitted the following

### R E P O R T

[To accompany H.R. 902]

The Committee on Energy and Natural Resources, to which was referred the Act (H.R. 902) to facilitate the use for irrigation and other purposes of water produced in connection with development of energy resources, having considered the same, reports favorably thereon with an amendment and recommends that the Act, as amended, do pass.

The amendment is as follows:

Strike out all after the enacting clause and insert in lieu thereof the following:

**SECTION 1. SHORT TITLE, FINDINGS, AND PURPOSE.**

(a) **SHORT TITLE.**—This Act may be cited as the “More Water, More Energy, and Less Waste Act of 2007”.

(b) **FINDINGS.**—The Congress finds that—

(1) development of energy resources, including oil, natural gas, coalbed methane, and geothermal resources, frequently results in bringing to the surface water extracted from underground sources;

(2) some of that produced water is used for irrigation or other purposes, but most of the water is returned to the subsurface or otherwise disposed of as waste;

(3) reducing the quantity of produced water returned to the subsurface and increasing the quantity of produced water that is made available for irrigation and other uses—

(A) would augment water supplies;

(B) could reduce the costs to energy developers for disposing of the water;

and

(C) in some cases, could increase the efficiency of energy development activities; and

(4) it is in the national interest

(A) to limit the quantity of produced water disposed of as waste;

(B) to optimize the production of energy resources; and

(C) to remove or reduce obstacles to use of produced water for irrigation or other purposes in ways that will not adversely affect water quality or the environment.

- (c) PURPOSES.—The purposes of this Act are—
- (1) to optimize the production of energy resources—
    - (A) by minimizing the quantity of produced water; and
    - (B) by facilitating the use of produced water for irrigation and other purposes without adversely affecting water quality or the environment; and
  - (2) to demonstrate means of accomplishing those results.

## SEC. 2. DEFINITIONS.

In this Act:

- (1) LOWER BASIN STATE.—The term “Lower Basin State” means any of the States of—
  - (A) Arizona;
  - (B) California; and
  - (C) Nevada.
- (2) PRODUCED WATER.—The term “produced water” means water from an underground source that is brought to the surface as part of the process of exploration for, or development of—
  - (A) oil;
  - (B) natural gas;
  - (C) coalbed methane; or
  - (D) any other substance to be used as an energy source.
- (3) SECRETARY.—The term “Secretary” means the Secretary of the Interior.
- (4) UPPER BASIN STATE.—The term “Upper Basin State” means any of the States of—
  - (A) Colorado;
  - (B) New Mexico;
  - (C) Utah; and
  - (D) Wyoming.

## SEC. 3. IDENTIFICATION OF PROBLEMS AND SOLUTIONS.

- (a) STUDY.—The Secretary shall conduct a study to identify—
  - (1) the technical, economic, environmental, and other obstacles to reducing the quantity of produced water;
  - (2) the technical, economic, environmental, legal, and other obstacles to increasing the extent to which produced water can be used for irrigation and other purposes without adversely affecting water quality or the environment;
  - (3) the legislative, administrative, and other actions that could reduce or eliminate the obstacles identified in paragraphs (1) and (2); and
  - (4) the costs and benefits associated with reducing or eliminating the obstacles identified in paragraphs (1) and (2).
- (b) REPORT.—Not later than 1 year after the date of enactment of this Act, the Secretary shall submit to the Committee on Natural Resources of the House of Representatives and the Committee on Energy and Natural Resources of the Senate a report describing the results of the study under subsection (a).

## SEC. 4. IMPLEMENTATION.

- (a) GRANTS.—Subject to the availability of appropriations, the Secretary shall provide financial assistance for the development of facilities, technologies, and processes to demonstrate the feasibility, effectiveness, and safety of—
  - (1) optimizing energy resource production by reducing the quantity of produced water generated; or
  - (2) increasing the extent to which produced water may be recovered and made suitable for use for irrigation, municipal, or industrial uses, or other purposes without adversely affecting water quality or the environment.
- (b) LIMITATIONS.—Assistance under this section—
  - (1) shall be provided for—
    - (A) at least 1 project in each of the Upper Basin States; and
    - (B) at least 1 project in at least 1 of the Lower Basin States;
  - (2) shall not exceed \$1,000,000 for any project;
  - (3) shall be used to pay not more than 50 percent of the total cost of a project;
  - (4) shall not be used for the operation or maintenance of any facility; and
  - (5) may be in addition to assistance provided by the Federal Government pursuant to other provisions of law.

## SEC. 5. CONSULTATION, ADVICE, AND COMMENTS.

In carrying out this Act, including in preparing the report under section 3 (b) and establishing criteria to be used in connection with an award of financial assistance under section 4, the Secretary shall—

- (1) consult with the Secretary of Energy, the Administrator of the Environmental Protection Agency, and appropriate Governors and local officials;
- (2)(A) review any relevant information developed in connection with research carried out by others, including research carried out pursuant to subtitle J of title IX of the Energy Policy Act of 2005 (42 U.S.C. 16371 et seq.); and
- (B) to the extent the Secretary determines to be advisable, include that information in the report under section 3 (b);
- (3) seek the advice of—
  - (A) individuals with relevant professional or academic expertise; and
  - (B) individuals or representatives of entities with industrial experience, particularly experience relating to production of oil, natural gas, coalbed methane, or other energy resources (including geothermal resources); and
- (4) solicit comments and suggestions from the public.

**SEC. 6. RELATION TO OTHER LAWS.**

Nothing in this Act supersedes, modifies, abrogates, or limits—

- (1) the effect of any State law or any interstate authority or compact relating to—
  - (A) any use of water; or
  - (B) the regulation of water quantity or quality; or
- (2) the applicability or effect of any Federal law (including regulations).

**SEC. 7. AUTHORIZATION OF APPROPRIATIONS.**

There are authorized to be appropriated—

- (1) \$1,000,000 to carry out section 3; and
- (2) \$7,500,000 to carry out section 4.

**PURPOSE**

The purpose of H.R. 902 is to facilitate the use for irrigation and other purposes of water produced in connection with development of energy resources.

**BACKGROUND AND NEED**

In 2002, 2.1 billion barrels of oil and 196 trillion cubic feet of natural gas were produced in the United States (API). These activities resulted in nearly 22 billion barrels of produced water (2.9 million acre-feet)—water that is brought to the surface with oil and gas as a byproduct of production. The most common method of disposal of the produced water is subsurface injection which is expensive and does not make use of a potentially valuable resource.

Currently, there are technical, economic, environmental, and legal issues which need to be addressed before the use of produced water becomes an industry norm. The potential benefits, though, are significant. Adding a new water resource in the water-short Western United States can help address future projected water shortages in the region. The produced water that contains the lowest concentration of dissolved solids (less than 10,000 ppm) is found in the West. For example, energy operations in the Powder River basin in north-central Wyoming produce approximately 1.4 million barrels of relatively good quality water per day.

Reducing the amount of produced water can also have significant benefits to the oil and gas industry. One estimate indicates that significantly reducing the volume injected into disposal wells can reduce the energy loss of operations by as much as 20 percent.

**LEGISLATIVE HISTORY**

H.R. 902 was introduced on February 7, 2007 by Representative Mark Udall for himself, and Representatives Chet Edwards and Steve Pearce, and referred to the House Natural Resources Committee. Under suspension of the rules, H.R. 902 passed the House

of Representatives on March 19, 2007. A similar measure, S. 1116 was introduced by Senator Salazar for himself, and Senator Bingaman, Senator Domenici, and Senator Thomas on April 16, 2007, and referred to the Committee on Energy and Natural Resources. The Subcommittee on Water and Power held a hearing on S. 1116 and H.R. 902 on April 25, 2007. At its business meeting on May 23, 2007, the Committee ordered H.R. 902 favorably reported, with an amendment in the nature of a substitute.

#### COMMITTEE RECOMMENDATION

The Senate Committee on Energy and Natural Resources, in an open business session on May 23, 2007, by a unanimous voice vote of a quorum present, recommends that the Senate pass H.R. 902, if amended as described herein.

#### COMMITTEE AMENDMENT

During the consideration of H.R. 902, the Committee adopted an amendment in the nature of a substitute to improve the bill.

The first change modifies the purpose of the bill to make clear that it is intended to help optimize energy production. The second change directs the Director of the Bureau of Land Management to participate in the study required under section 3. The third change expands the scope of the study to include an analysis of obstacles to reducing the quantity of produced water, the means to reducing those obstacles, and the relative costs and benefits of doing so. The fourth change modifies the Secretary's authority to provide grants to include projects to reduce the amount of produced water generated. The fifth change specifies that the Secretary shall provide grants to at least one project in each of the Upper Basin States and one project in the Lower Basin States. The final change increases the authorization for grants from \$5,000,000 to \$7,500,000.

#### SECTION-BY-SECTION ANALYSIS

*Section 1* provides the short title, findings, and purposes of the Act.

*Section 2* defines the terms used in the Act.

*Section 3(a)* directs the Secretary to conduct a study to identify obstacles to reducing the quantity of produced water; obstacles to increasing the use of produced water; actions to minimize the identified obstacles; and costs and benefits associated with minimizing the identified obstacles.

*Section 3(b)* directs the Secretary to submit to Congress a report on the study under subsection (a) not later than one year after the date of enactment.

*Section 4(a)* directs the Secretary, subject to appropriations, to provide grants for the development of facilities, technologies, and processes to demonstrate the feasibility, effectiveness, and safety of projects to reduce the quantity of produced water generated or to recover, clean-up, and apply produced water to beneficial uses.

*Section 4(b)* provides that grants under the program shall be subject to the conditions and limitations described.

*Section 5* requires the Secretary to consult with other Federal agencies, and with State, local, private entities, and the public at large as described.

*Section 6* disclaims that the Act supersedes, modifies, abrogates, or limits State law, Federal law, or any interstate compact or authority.

*Section 7* authorizes appropriations to carry out the Act.

COST AND BUDGETARY CONSIDERATIONS

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

JUNE 7, 2007.

Hon. JEFF BINGAMAN,  
*Chairman, Committee on Energy and Natural Resources,*  
*U.S. Senate, Washington, DC.*

DEAR MR. CHAIRMAN: The Congressional Budget Office has prepared the enclosed cost estimate for H.R. 902, the More Water, More Energy, and Less Waste Act of 2007.

If you wish further details on this estimate, we will be pleased to provide them. The CBO staff contact are Tyler Kruzich and David Reynolds.

Sincerely,

PETER R. ORSZAG.

Enclosure.

*H.R. 902—More Water, More Energy, and Less Waste Act of 2007*

Summary: H.R. 902 would authorize the Secretary of the Interior, acting through the Bureau of Reclamation (BOR) and the U.S. Geological Survey (USGS), to study the feasibility of using water produced during oil and gas exploration for irrigation. The act would authorize the Secretary to provide grants for projects that demonstrate such use. For these purposes, the act would authorize the appropriation of \$8.5 million.

Assuming appropriations of the authorized amounts, CBO estimates that the agencies would spend \$1 million to conduct a feasibility study in 2008 and 2009, \$3 million for demonstration project grants over the 2010–2012 period, and about \$5 million after 2012. Enacting H.R. 902 would not affect revenues or direct spending.

The legislation contains no private-sector or intergovernmental mandates as defined in the Unfunded Mandates Reform Act (UMRA) and would impose no costs on state, local, or tribal governments.

Estimated costs to the Federal Government: The estimated budgetary impact of H.R. 902 is shown in the following table. The costs of this legislation fall within budget function 300 (natural resources and environment).

	By fiscal year, in millions of dollars—				
	2008	2009	2010	2011	2012
CHANGES IN SPENDING SUBJECT TO APPROPRIATION					
Estimated Authorization Level .....	1	0	8	0	0
Estimated Outlays .....	*	1	1	1	1

Note.—\* = less than \$500,000.

Basis of estimate: For this estimate, CBO assumes that H.R. 902 will be enacted before the end of 2007 and that the authorized amounts will be appropriated for each year.

The act would require the USGS to study the feasibility of using water produced during oil and natural gas exploration for irrigation purposes. Based on information from USGS, CBO estimates that conducting the study would cost \$1 million over the next two years.

H.R. 902 also would authorize BOR to provide grants for demonstration projects. CBO expects that the disbursement of grants would commence in 2010 following the completion of the feasibility study. Based on information from BOR, CBO estimates that grants to the states would cost \$3 million over the 2010–2012 period and an additional \$5 million after 2012.

Intergovernmental and private-sector impact: H.R. 902 contains no intergovernmental or private-sector mandates as defined by UMRA and would impose no costs on the budgets of state, local, or tribal governments.

Estimate prepared by: Federal Costs: Tyler Kruzich and David Reynolds; Impact on State, Local, and Tribal Governments: Lisa Ramirez-Branum; Impact on the Private Sector: Amy Petz.

Estimate approved by: Peter H. Fontaine, 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 H.R. 902. The bill is not a regulatory measure in the sense of imposing Government-established standards or significant responsibilities on private individuals and business.

No 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 H.R. 902.

#### EXECUTIVE COMMUNICATIONS

The testimony provided by the Department of the Interior at the Subcommittee hearing on H.R. 902 and S. 1116, the Senate counterpart to H.R. 902, follows:

##### STATEMENT OF ROBERT M. HIRSCH, ASSOCIATE DIRECTOR FOR WATER, U.S. GEOLOGICAL SURVEY, U.S. DEPARTMENT OF THE INTERIOR

Mr. Chairman and Members of the Subcommittee, I am Dr. Robert M. Hirsch, Associate Director for Water for the U.S. Geological Survey (USGS). I thank you for the opportunity to provide the views of the Department of the Interior on H.R. 902, the “More Water and More Energy Act of 2007.”

The Department agrees that the goals of the bill are commendable, but we have concerns regarding the availability of funding and the Administration’s priorities. In addition, the USGS and Bureau of Reclamation (Reclamation) currently have sufficient authority to carry out the types of activities authorized by H.R. 902.

Water is the lifeblood of the American West and the foundation of its economy, yet it is also the scarcest re-

source in some of the fastest growing areas of the country. Seeking to remove the obstacles to putting produced waters to beneficial use is important to our Nation's energy and water future.

H.R. 902 requires the Secretary of the Interior, acting through the Commissioner of Reclamation, and the Director of the USGS, to conduct a study to identify the technical, economic, environmental, legal, and other obstacles to increasing the extent to which produced water can be used for irrigation and other purposes; and the legislative, administrative, and other actions that could reduce or eliminate such obstacles. It further requires the Secretary, within existing authorities, and subject to the availability of funds, appropriated for the purpose, to provide financial assistance for at least four demonstration projects. The \$4 million authorized for demonstration project grants would be used to develop facilities to demonstrate the feasibility, effectiveness, and safety of the processes to increase the extent produced water may be used for irrigation and other purposes.

#### BACKGROUND

Development of energy resources, such as oil, natural gas, and coalbed methane, produces water, sometimes in volumes that are difficult and costly to manage. Often the produced water is of such poor quality that subsurface disposal is an essential cost of production. Streams and aquifers can be contaminated by improper handling of produced water or the failure of disposal systems. The major concerns over produced water are potential impacts on soils, water, and the biota that depend on the soil and water. Where produced water quality is unsuitable for irrigation, industrial, or domestic uses, it can be disposed of by deep well injection, evaporation, or after appropriate treatment, percolation or discharge into surface water drainages.

Prior to environmental regulations in the 1970s, produced waters, which are often highly saline (3,000 to more than 350,000 mg/L total dissolved solids) and may contain toxic metals, organic and inorganic components, and naturally occurring radioactive materials, were commonly discharged into streams, creeks, and unlined evaporation ponds, causing salt crusts and surface- and ground-water contamination. These past practices and current accidental releases of produced water are national issues that concern managers of Native American, Federal, and State lands, as well as oil and gas producers, mineral rights and lease owners, State and Federal regulators, and land owners. A growing concern is the potential use of land for farming, housing, or other uses where produced water from oil and gas production has left a legacy of undesirable environmental effects. Even produced waters of low salinity can lead to problems because application of such waters to the land for irrigation or ground water recharge can result in rapid leaching of the naturally occurring salts present in

the soil and the unsaturated zone, leading to potential contamination of aquifers and streams.

The USGS has an 80-year history of conducting scientific studies to evaluate and describe the long-term and short-term effects of the disposal of produced water on soils, ground water, streams, and ecosystems. The USGS has also conducted numerous studies to describe the effects of produced-water salts on water and biota, techniques for detecting these effects, and techniques for remediation of soils and ground water.

In 2002, the USGS released a national produced-water geochemistry database that describes the water quality of waters produced from conventional oil and gas fields. This database is an invaluable tool for coalbed methane development companies; land managers; Federal, State, and local water-quality officials; and the public. The information facilitates evaluation of issues pertaining to energy resource development and environmental quality, such as the need for anti-scaling additives, the design of water handling and treatment systems, and disposal and beneficial use options.

The USGS and the U.S. Fish and Wildlife Service are studying the impacts on water quality and the landscape caused by waters associated with coalbed methane production in the Powder River Basin of Wyoming. This research is being conducted as part of the DOI Landscapes Initiative in collaboration with the Department of Energy, U.S. Fish and Wildlife Service, Bureau of Land Management, and others. One component of that project is an examination of hydrology and geochemistry in the vicinity of a produced-water infiltration pond. Early findings are that slightly to moderately saline water infiltrating from the pond dissolved significant quantities of salts present in the soil and unsaturated zone, resulting in a significant increase in total dissolved solids. Although coalbed methane production in the Powder River Basin can provide ecological benefits by increasing stream flows and creating and enhancing wetlands, there are some concerns associated with the levels of contaminants in the Basin. Indeed, preliminary findings were dramatic enough to cause a State regulatory agency to order that disposal of produced water at the infiltration pond be stopped and the site be reclaimed.

The USGS, in cooperation with the Osage Nation, Department of Energy, and U.S. Environmental Protection Agency, is investigating the effects of hydrocarbons and produced water (brines) on soil and ground and surface water at two sites adjacent to Skiatook Lake in the southeastern part of the Osage Reservation in northeastern Oklahoma. Results from this investigation will provide information needed by environmental officials, land managers, petroleum companies, and land owners to assess human and ecosystem impacts and to develop risk-based corrective actions to clean up contamination from produced water from oil and gas wells that are no longer active.



Reclamation has extensive expertise and capabilities in water storage and delivery infrastructure planning and design. Reclamation works with the states, BLM, EPA and others in managing produced waters so that the quality of Western water supplies are not degraded by impaired produced waters.

Pilot and demonstration projects like those described in this bill could help provide proof of concept from treatment to beneficial use in key basins where opportunities may exist for converting produced waters to beneficial uses. However, the feasibility and potential value of any demonstration project should be evaluated prior to making any commitments to conduct pilot and demonstration projects. Any such demonstration projects should be well coordinated at the federal, state, and local levels. Other federal agencies with whom Reclamation and USGS would coordinate such demonstration projects include BLM, EPA, and DOE's National Energy Technology Lab (NETL).

#### CONCERNS

The Department concurs with the goals of the bill to identify impediments to the beneficial use of produced waters. Understanding the opportunities and overcoming the challenges involved in converting produced waters to beneficial uses will help irrigators, farmers, energy producers, and State and Federal agency efforts to increase the development of western energy sources while protecting the quality of our streams and aquifers.

Our concerns with the bill include funding for these activities. The study, report, and pilot activities required by this bill are not currently in the FY2007 operating plans for the USGS or BOR and the FY 2008 President's Budget also does not fund these activities. The activities authorized in this bill should compete with other priority projects for funds.

Additionally, language in Section 3 that directs the Secretary, acting through USGS and BOR, to conduct a study to identify the legal, legislative, and administrative obstacles to increasing the extent to which produced water can be used for irrigation and other purposes. It is not within the purview or expertise of the USGS or BOR to identify legal, legislative, or administrative obstacles.

Another concern is that if the bill becomes law, the accomplishment of the study and report, as proposed in Section 3 of H.R. 902, should be subject to the availability of funds appropriated for that purpose, just as the projects proposed by section 4 are. We anticipate that such a study would focus on existing and potential new technologies for treating produced waters to make them suitable for beneficial uses and would also focus on existing and potential new hydrologic and geochemical models needed to predict the impacts of various management strategies on streams, aquifers, soils and biota.

We wish to note that S. 1116, a companion bill to H.R. 902 which was introduced on April 17, 2007, is very simi-

lar to H.R. 902 and that the Administration would have the same concerns about S. 1116 that we have discussed with respect to H.R. 902. We have one other comment on S. 1116. Section 3(a) of the Senate bill includes the Bureau of Land Management (BLM) in the list of agencies within the Department of the Interior that are to carry out the study authorized in this bill. While Reclamation and USGS are working with the BLM to manage produced waters, a study of this nature would appropriately be carried out by Reclamation and USGS. BLM and other Interior agencies, including the Fish and Wildlife Service, would provide assistance as appropriate but should not be listed as leads on the study.

Improved technology and collaboration are among the four key tools proposed as part of Water 2025, an initiative of the Department to meet the water-supply challenges of the future.

Thank you, Mr. Chairman, for the opportunity to present this testimony. I will be pleased to respond to questions you and other Members of the Subcommittee may have.

#### CHANGES IN EXISTING LAW

In compliance with paragraph 12 of rule XXVI of the Standing Rules of the Senate, the Committee notes that no changes in existing law are made by the Act H.R. 902, as ordered reported.

