

H.R. 1528 has the full support of the administration, and I urge its passage.

Mr. Speaker, I reserve the balance of my time.

Mr. UNDERWOOD. Mr. Speaker, I yield myself such time as I may consume.

(Mr. UNDERWOOD asked and was given permission to revise and extend his remarks.)

Mr. UNDERWOOD. Mr. Speaker, this bill, the National Geologic Mapping Reauthorization Act of 1991, has the full support of the Committee on Resources. Democrats and Republicans alike have voted to favorably report this bill to the House, and the Clinton administration has also endorsed the bill.

We need geologic mapping in our society for many worthwhile purposes, including emergency preparedness, environmental protection, land use planning, and resource extraction.

Over the years, the need for geologic maps has grown steadily, but map production has not kept up. The Earth provides the physical foundation for our society. We live upon it and we use its resources. Therefore, we need to work toward a better understanding of the Earth's resources and potential dangers.

Geologic maps are one effective way to convey the Earth science foundation needed for better understanding and decision-making by all of us, Federal agencies, State, territorial, and local governments, private industry, and the general public alike.

The National Geologic Mapping Act of 1992, which this bill would extend, which was first authored by our colleague, the gentleman from West Virginia (Mr. RAHALL) authorized a national program of geologic mapping to be accomplished through partnership with State geological surveys, academia, the private sector, and the USGS.

This partnership is essential if we are to developing the extensive amount of material needed for informed decision-making. Accordingly, it is my pleasure to support adoption of the bill. I urge all of my colleagues on both sides of the aisle to join me in voting on H.R. 1528.

I would like to acknowledge the leadership of the subcommittee chairwoman, the gentlewoman from Wyoming (Mrs. CUBIN).

Mrs. CUBIN. Mr. Speaker, I yield 5 minutes, to the gentleman from Nevada (Mr. GIBBONS).

(Mr. GIBBONS asked and was given permission to revise and extend his remarks.)

Mr. GIBBONS. Mr. Speaker, first of all, I would like to begin by thanking the gentlewoman from Wyoming (Mrs. CUBIN) for her gracious yielding of time for me to speak, and her diligent work and commitment on this bill, as well as that of the gentleman from Guam (Mr. UNDERWOOD), and for seeing to it that this bill reaches the House floor.

Mr. Speaker, this legislation becomes very important when we consider and

address issues of safety in the environment. H.R. 1528 reauthorizes the geologic mapping Act of 1992, which was a legislative response to identified deficiencies in the National Academy of Sciences with their lack of basic geologic knowledge and structures in this country.

Being a geologist myself, I can personally attest to the great importance of geologic mapping and its resultant impact on many aspects of our society. Geologic maps benefit safety and planning regulations, telling us where natural disasters may occur. For example, they identify and map earthquake fault lines and water flow patterns which are important to identifying disaster potentials when building infrastructure for our communities and transportation routes.

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Without a detailed geologic map of the United States, we will be forced to address issues such as safe drinking water and environmental systems, understanding in the same dangerous fashion that someone might drive a car at night without headlights.

It is imperative for us to explore and understand what resources we have in this country and how best to use them before we carelessly make unscientific decisions without the full knowledge of our underlying environment.

I also believe that detailed geologic maps provide the basic information for solving a broad range of regional and State problems. These include the protection of drinking water, the identification and mitigation of natural hazards such as earthquakes and volcanic eruptions, as well as many other land-use planning requirements.

This legislation will assist State and local communities with land and water decisions, aid farmers and ranchers with crop decisions, advance habitat protection for endangered species, and aid the mining industry with site determination for mineral resources.

Currently, Mr. Speaker, only about 20 percent or one-fifth of the Nation is adequately mapped. Congress, however, has finally begun to understand the importance and need of geologic mapping, and it is time that we use our dollars wisely to bring about the best science for this country.

Geologic maps are the primary database for virtually all applied and basic earth science investigations. It is because of this continued need for core science that I urge all Members to support H.R. 1528. I believe that passage of this bill is in the best interest of science and the Nation as well.

Once again, Mr. Speaker, I would like to thank the gentlewoman from Wyoming (Mrs. CUBIN) for her leadership in bringing this important legislation before us today. I urge all my colleagues to vote in favor of this bill.

Mr. UNDERWOOD. Mr. Speaker, I yield back the balance of my time.

Mrs. CUBIN. Mr. Speaker, I yield back the balance of my time.

The SPEAKER pro tempore (Mr. BONILLA). The question is on the motion offered by the gentlewoman from Wyoming (Mrs. CUBIN) that the House suspend the rules and pass the bill, H.R. 1528.

The question was taken; and (two-thirds having voted in favor thereof) the rules were suspended and the bill was passed.

A motion to reconsider was laid on the table.

GAS HYDRATE RESEARCH AND DEVELOPMENT ACT OF 1999

Mr. SENSENBRENNER. Mr. Speaker, I move to suspend the rules and pass the bill (H.R. 1753) to promote the research, identification, assessment, exploration, and development of methane hydrate resources and for other purposes, as amended.

The Clerk read as follows:

H.R. 1753

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 "Gas Hydrate Research and Development Act of 1999".

SEC. 2. DEFINITIONS.

In this Act:

(1) CONTRACT.—The term "contract" means a procurement contract within the meaning of section 6303 of title 31, United States Code.

(2) COOPERATIVE AGREEMENT.—The term "cooperative agreement" means a cooperative agreement within the meaning of section 6305 of title 31, United States Code.

(3) DIRECTOR.—The term "Director" means the Director of the National Science Foundation.

(4) GRANT.—The term "grant" means a grant awarded under a grant agreement, within the meaning of section 6304 of title 31, United States Code.

(5) INSTITUTION OF HIGHER EDUCATION.—The term "institution of higher education" means an institution of higher education, within the meaning of section 1201(a) of the Higher Education Act of 1965 (20 U.S.C. 1141(a)).

(6) SECRETARY.—The term "Secretary" means the Secretary of Energy, acting through the Assistant Secretary for Fossil Energy.

(7) SECRETARY OF COMMERCE.—The term "Secretary of Commerce" means the Secretary of Commerce, acting through the Administrator of the National Oceanic and Atmospheric Administration.

(8) SECRETARY OF DEFENSE.—The term "Secretary of Defense" means the Secretary of Defense, acting through the Secretary of the Navy.

(9) SECRETARY OF THE INTERIOR.—The term "Secretary of the Interior" means the Secretary of the Interior, acting through the Director of the United States Geological Survey and the Director of the Minerals Management Service.

SEC. 3. GAS HYDRATE RESEARCH AND DEVELOPMENT PROGRAM.

(a) IN GENERAL.—

(1) COMMENCEMENT OF PROGRAM.—Not later than 180 days after the date of enactment of this Act, the Secretary, in consultation with the Secretary of Commerce, the Secretary of Defense, the Secretary of the Interior, and the Director, shall commence a program of gas hydrate research and development.

(2) DESIGNATIONS.—The Secretary, the Secretary of Commerce, the Secretary of Defense, the Secretary of the Interior, and the

Director shall designate individuals to carry out this section.

(3) MEETINGS.—The individuals designated under paragraph (2) shall meet not later than 120 days after the date on which all such individuals are designated and not less frequently than every 120 days thereafter to—

(A) review the progress of the program under paragraph (1); and

(B) make recommendations on future activities to occur subsequent to the meeting.

(b) GRANTS, CONTRACTS, COOPERATIVE AGREEMENTS, INTERAGENCY FUNDS TRANSFER AGREEMENTS, AND FIELD WORK PROPOSALS.—

(1) ASSISTANCE AND COORDINATION.—The Secretary may award grants or contracts to, or enter into cooperative agreements with, institutions of higher education and industrial enterprises to—

(A) conduct basic and applied research to identify, explore, assess, and develop gas hydrate as a source of energy;

(B) assist in developing technologies required for efficient and environmentally sound development of gas hydrate resources;

(C) undertake research programs to provide safe means of transport and storage of gas produced from gas hydrates;

(D) promote education and training in gas hydrate resource research and resource development;

(E) conduct basic and applied research to assess and mitigate the environmental impacts of hydrate degassing (including both natural degassing and degassing associated with commercial development); and

(F) develop technologies to reduce the risks of drilling through gas hydrates.

(2) COMPETITIVE MERIT-BASED REVIEW.—Funds made available under paragraph (1) shall be made available based on a competitive merit-based process.

(c) CONSULTATION.—The Secretary shall establish an advisory panel consisting of experts from industry, institutions of higher education, and Federal agencies to—

(1) advise the Secretary on potential applications of gas hydrate;

(2) assist in developing recommendations and priorities for the gas hydrate research and development program carried out under subsection (a)(1); and

(3) report to the Congress within 2 years after the date of the enactment of this Act, or at such later date as the Secretary considers advisable, on the impact on global climate change from gas hydrate extraction and consumption.

(d) LIMITATIONS.—

(1) ADMINISTRATIVE EXPENSES.—Not more than 5 percent of the amount made available to carry out this section for a fiscal year may be used by the Secretary for expenses associated with the administration of the program carried out under subsection (a)(1).

(2) CONSTRUCTION COSTS.—None of the funds made available to carry out this section may be used for the construction of a new building or the acquisition, expansion, remodeling, or alteration of an existing building (including site grading and improvement and architect fees).

(e) RESPONSIBILITIES OF THE SECRETARY.—In carrying out subsection (b)(1), the Secretary shall—

(1) facilitate and develop partnerships among government, industry, and institutions of higher education to research, identify, assess, and explore gas hydrate resources;

(2) undertake programs to develop basic information necessary for promoting long-term interest in gas hydrate resources as an energy source;

(3) ensure that the data and information developed through the program are accessible and widely disseminated as needed and appropriate;

(4) promote cooperation among agencies that are developing technologies that may hold promise for gas hydrate resource development; and

(5) report annually to Congress on accomplishments under this section.

SEC. 4. AMENDMENTS TO THE MINING AND MINERALS POLICY ACT OF 1970.

Section 201 of the Mining and Minerals Policy Act of 1970 (30 U.S.C. 1901) is amended—

(1) by redesignating paragraphs (4) through (7) as paragraphs (5) through (8), respectively;

(2) by inserting after paragraph (3) the following:

“(4) The term ‘gas hydrate’ means a gas clathrate that—

“(A) is in the form of a gas-water ice-like crystalline material; and

“(B) is stable and occurs naturally in deep-ocean and permafrost areas.”; and

(3) in paragraph (7), as so redesignated by paragraph (1) of this section—

(A) in subparagraph (F), by striking “and” at the end;

(B) by redesignating subparagraph (G) as subparagraph (H); and

(C) by inserting after subparagraph (F) the following:

“(G) for purposes of this section and sections 202 through 205 only, gas hydrate; and”.

SEC. 5. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the Secretary of Energy to carry out this Act—

(1) \$5,000,000 for fiscal year 2000;

(2) \$7,500,000 for fiscal year 2001;

(3) \$11,000,000 for fiscal year 2002;

(4) \$12,000,000 for fiscal year 2003; and

(5) \$12,000,000 for fiscal year 2004.

Amounts authorized under this section shall remain available until expended.

SEC. 6. SUNSET.

Section 3 of this Act shall cease to be effective after the end of fiscal year 2004.

SEC. 7. REPORTS AND STUDIES.

The Secretary shall simultaneously provide to the Committee on Science of the House of Representatives and the Committee on Energy and Natural Resources of the Senate copies of any report or study that the Department of Energy prepares at the direction of any committee of the Congress.

The SPEAKER pro tempore. Pursuant to the rule, the gentleman from Wisconsin (Mr. SENSENBRENNER) and the gentleman from Illinois (Mr. COSTELLO) each will control 20 minutes.

The Chair recognizes the gentleman from Wisconsin (Mr. SENSENBRENNER).

GENERAL LEAVE

Mr. SENSENBRENNER. Mr. Speaker, I ask unanimous consent that all Members may have 5 legislative days within which to revise and extend their remarks on H.R. 1753.

The SPEAKER pro tempore. Is there objection to the request of the gentleman from Wisconsin?

There was no objection.

Mr. SENSENBRENNER. Mr. Speaker, I yield myself such time as I may consume.

Mr. Speaker, gas hydrates, which consist of a mixture of gas and water frozen into a solid crystalline state, have great energy potential. The most abundant form of gas hydrates, methane hydrates, are found in many areas throughout the world.

The U.S. Geological Survey's 1995 National Assessment of United States Oil

and Gas Resources estimated the value of the U.S. in-place methane hydrate resource to be an astounding 320,000 trillion cubic feet of gas or 320 quadrillion cubic feet of gas.

By comparison, the United States annually consumes about 22 trillion cubic feet of methane as natural gas, and the world's current known gas reserves are about 5,000 trillion cubic feet of gas.

In addition, the occurrence and stability of gas hydrates at oceanic depths offers the possibility that excess greenhouse gases, especially carbon dioxide, may be disposed in the deep ocean as synthetic hydrates.

H.R. 1753 directs the Secretary of Energy, in consultation with the Secretaries of Commerce, Defense, and the Interior, and the Director of the National Science Foundation, to commence a program of gas hydrate R&D.

It authorizes the Secretary of Energy \$5 million for fiscal year 2000, \$7.5 million for fiscal year 2001, \$11 million for fiscal year 2002, and \$12 million for each of fiscal years 2003 and 2004 to carry out the program.

The bill also authorizes the Secretary of Energy to award grants or contracts to, or enter into cooperative agreements with institutions of higher education and industrial enterprises to conduct gas hydrate R&D; requires that all such awards be made available based on a competitive merit review process.

It limits administrative expenses to not more than 5 percent and prohibits any funds from being used for either the construction of a new building or alteration of an existing building, including site grading and improvement and architect fees.

It allows the Secretary of Interior to award gas hydrate R&D contracts in grants to, and to enter into cooperative agreements with, qualified entities under the Marine Mineral Resources Research Act of 1996.

It sunsets the gas hydrate R&D program after the end of fiscal year 2004.

Mr. Speaker, I commend the bill to the House for its adoption.

Mr. Speaker, I reserve the balance of my time.

Mr. COSTELLO. Mr. Speaker, I yield myself such time as I may consume.

Mr. Speaker, I am pleased to be here today to move one step closer to enactment of the Gas Hydrates Research and Development Act. I would like to thank the gentleman from Wisconsin (Mr. SENSENBRENNER), chairman of the full Committee on Science, as well as the gentleman from Texas (Mr. HALL), the ranking member of the full committee, the gentleman from California (Mr. CALVERT), the chairman of the Subcommittee on Energy and Environment, for all of their hard work on this bill.

In particular, I would like to commend the gentleman from Pennsylvania (Mr. DOYLE), our colleague on the subcommittee and full committee, for all of his hard work on this legislation. He of course is the author of this bill.

Gas hydrates have the potential to provide a significant natural gas resource to this country if they are safely and economically extracted from the ocean floor where they are found.

This legislation establishes an inter-agency research and development program to examine many issues associated with the extraction of gas hydrates, including the possible economic, environmental, and energy benefits.

I strongly support this legislation.

Mr. Speaker, I yield the balance of my time to the gentleman from Pennsylvania (Mr. DOYLE), and I ask unanimous consent that he be allowed to control that time.

The SPEAKER pro tempore. Is there objection to the request of the gentleman from Illinois?

There was no objection.

Mr. DOYLE. Mr. Speaker, I yield myself such time as I may consume. Mr. Speaker, I appreciate the gentleman from Illinois (Mr. COSTELLO) for yielding me the time.

Mr. Speaker, I am pleased to be here this afternoon to speak in support of the Gas Hydrate Research and Development Act. As has been noted, this bill is a 5-year authorization measure that will promote the research, identification, assessment, exploration, and development of gas hydrate resources.

I want to thank the gentleman from Wisconsin (Chairman SENSENBRENNER) for his interest in moving forward with this bill. I want to recognize his efforts in drawing greater attention to a diverse range of important and timely matters, including the need for heightened gas hydrate research, that have come before the Committee on Science during this session.

I also want to acknowledge the support that the gentleman from California (Mr. CALVERT), the chairman of the Subcommittee on Energy and Environment, and the gentleman from Illinois (Mr. COSTELLO), the ranking member, has given to the initiatives that are outlined in the legislation currently before us.

Mr. Speaker, the Gas Hydrate Research and Development Act provides the necessary framework, guidance, and authority to enable further examination in what could conceivably save consumers billions of dollars, make difficult national and environmental decisions easier, and strengthen our Nation's energy security.

I am proud of the fact that this effort has attracted bipartisan support in the House as well as in the Senate. Senator AKAKA's companion legislation S. 330, which is cosponsored by Senators LOTT, GRAHAM, CRAIG, and LANDRIEU, was passed by the Senate earlier this year. Here in the House, I am pleased to report that both the Committee on Science and the Committee on Resources reported the measure out by voice vote.

I am also particularly proud of the inclusive approach that this initiative embodies. It instructs the Secretary of

Energy to work with other agencies, institutions of higher education, and the private sector in conducting future gas hydrate research and development. I have always favored a consortium approach to such efforts as they not only prove to be cost effective, but in many cases help to accelerate the rate of discovery.

There are many questions surrounding gas hydrates that must be answered, and to accomplish the necessary R&D activities will require a diverse set of engineering and scientific disciplines. I am confident that DOE's outreach efforts and the specific expertise in this area can be found at our Federal energy technology centers, in concert with the input from the other entities I have previously mentioned, that we can achieve our goal of producing the technology necessary for the commercial production of methane from oceanic and permafrost hydrate systems while at the same time meeting requirements for cleaner fuels and reduced emissions.

Mr. Speaker, I reserve the balance of my time.

Mr. SENSENBRENNER. Mr. Speaker, I yield 3 minutes to the distinguished gentlewoman from Wyoming (Mrs. CUBIN).

Mrs. CUBIN. Mr. Speaker, I rise in strong support of H.R. 1753, a bill to authorize a program of the Department of Energy fostering research and development of a peculiar form of energy minerals, natural gas hydrates.

This bill is a blended version of the legislation reported by the Committee on Science and the Committee on Resources. It reflects a role for the Department of Interior's Mineral Management Service, the agency which is charged with resources disposition from our continental shelves. That is where the lion's share of methane hydrate minerals occur, there and in the permafrost regions of the Earth.

This bill integrates the role which the scientists of the Marine Minerals Research Institute, an adjunct of the Minerals Management Service, may play in gas hydrates research. The Institute, which has three branches, one for continental shelf research, one for deep ocean basins and near island environments, and one for arctic and cold water regions, is well positioned to provide expertise in the quest to make what is now a drilling hazard for some OCS operations and turn it into an energy resource.

Mr. Speaker, without a doubt, if this Nation is to reach a sustained use of 30 trillion cubic feet of natural gas by the end of the next decade, which is a Clinton administration projection, then we will need to develop unconventional sources of natural gas as well as the traditional accumulations. Coalbed methane being developed in my home State of Wyoming is one of those unconventional sources. But methane hydrates in our Alaskan permafrost regions and our OCS also hold great promise to help our country meet this demand with domestic gas.

I would like to thank the gentleman from Wisconsin (Chairman SENSENBRENNER) for his willingness to incorporate several Committee on Resources' adopted provisions to strengthen this bill. I would also like to thank the committee staffs for their work to iron out the differences.

Lastly, I would like to acknowledge the efforts of our former congressional science fellow, Dr. David Wunsch. He was critical to the formulation of my subcommittee's hearings and amendments to this bill.

Mr. Speaker, I urge my colleagues to support this bill and to help us move toward the goal of energy self-sufficiency.

Mr. DOYLE. Mr. Speaker, I yield 3 minutes to the gentleman from West Virginia (Mr. MOLLOHAN), who has always been and continues to be a leading advocate for critical R&D efforts. I know I am not alone in counting the gentleman from West Virginia among the most distinguished Members of Congress who can always be counted on for his strong support and sound advice.

Mr. MOLLOHAN. Mr. Speaker, I rise in support of H.R. 1753, the Gas Hydrate Research and Development Act of 1999. I want to commend the gentleman from Pennsylvania (Mr. DOYLE) for his introduction of this legislation and for his leadership in the area of this Nation's research into the use of energy and the more efficient use of energy, creating an energy independence for this country.

The Department of Energy estimates that up to 200,000 trillion cubic feet of methane may exist in crystalline or hydrate form and in U.S. permafrost regions and surrounding waters. This potentially enormous resource is 100 times greater than the entire conventional natural gas supply in the United States.

However, we are still unsure how much methane we really have in hydrate form as well as how exactly to convert methane hydrates into a commercially feasible product.

In 1997, the President's Committee of Advisors on Science and Technology, P-CAST, identified the need for a comprehensive methane hydrates research and development program, recommending an initial investment of \$44 million over 5 years.

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H.R. 1753 will go a long way toward implementing the P-CAST recommendations and will continue the work already started by the Federal Energy Technology Center, FETC, which has sites in Morgantown, West Virginia, and in Pittsburgh, Pennsylvania.

FETC has a long history in the methane hydrates field. In 1981, when the first hydrate ice core was retrieved, FETC was one of the six organizations chosen to analyze it. Continuing its leadership in this area, FETC has developed a strong methane hydrate

strategy designed to implement the P-CAST recommendations.

H.R. 1753 would allow DOE to move forward with the FETC hydrates program. Other nations, most notably Japan, already have begun intensive hydrate research efforts. The longer we wait to move ahead, the harder it will be to catch up.

I call on my colleagues to join me in voting for this important legislation, and I call on DOE to implement the FETC plan.

Mr. SENSENBRENNER. Mr. Speaker, I yield 3 minutes to the gentleman from California (Mr. CALVERT), the distinguished subcommittee chair.

Mr. CALVERT. Mr. Speaker, I thank the gentleman from Wisconsin, the chairman of the Committee on Science, for yielding me this time.

As chairman of the Subcommittee on Energy and Environment of the Committee on Science, I am pleased we are considering H.R. 1753, the Gas Hydrates Research and Development Act of 1999. My friend and colleague on the subcommittee, the gentleman from Pennsylvania (Mr. DOYLE), introduced H.R. 1753, which we marked up and passed by a voice vote on May 12. I am happy to report the final version was approved overwhelmingly by the full committee on September 9.

Mr. Speaker, I have the distinct pleasure of serving on both the House Committee on Science and the Committee on Resources, which shared jurisdiction on this bill, and I would like to thank my friends on the Committee on Resources for all their hard work in getting H.R. 1753 to the floor.

I especially would like to thank the chairman, the gentleman from Alaska (Mr. YOUNG), and the gentlewoman from Wyoming (Mrs. CUBIN), who now ably chairs the subcommittee which I once chaired and whose willingness to work with me and the chairman of the Committee on Science on this important piece of legislation is much appreciated. I also again would like to thank the gentleman from Illinois (Mr. COSTELLO), who worked hard to make sure that this bill moved forward.

Gas hydrates, as has been described here earlier, are an ice-like substance found in the undersea sediment in the Arctic permafrost and other locations throughout the world. These hydrates one day will provide an abundant supply of clean natural gas if we can only figure out a way to get it out. So that is what this is all about. Much more research is needed before we can attain that goal, and 1753 brings us closer to the day when we can safely and effectively begin to use this abundant new source of energy.

This legislation will make funds available to continue the research into extracting this clean and bountiful source of potential energy gas hydrates. It also seeks to better coordinate research between the Department of Energy, the U.S. Geological Survey, and the United States Navy.

I urge my colleagues to support this legislation which will help secure our energy future.

Mr. DOYLE. Mr. Speaker, I yield 2½ minutes to the gentleman from Guam (Mr. UNDERWOOD), who played an instrumental role in shepherding this legislation through the House Committee on Resources.

Mr. UNDERWOOD. Mr. Speaker, I rise in support of H.R. 1753, the Methane Hydrate Research and Development Act of 1999, a piece of legislation which was introduced on May 11 by our friend and colleague, the gentleman from Pennsylvania (Mr. DOYLE), who has taken the lead on this. I also want to thank the chairman of the Committee on Science, the gentleman from Wisconsin (Mr. SENSENBRENNER), the gentleman from California (Mr. CALVERT), the gentleman from Illinois (Mr. COSTELLO), and the gentlewoman from Wyoming (Mrs. CUBIN) for their efforts in support of this.

The primary purpose of this bill is to promote the research, identification, assessment, exploration, and development of methane hydrate resources. This is important because one of our most important sources of clean, efficient energy is natural gas. Today, natural gas comes primarily from geological formations in which methane molecules exist in the form of gas.

They also exist in ice-like formations called hydrates. Hydrates trap methane molecules inside a cage of frozen water and hydrates are generally found on or under seabeds and under permafrost. While we do not know the extent or amount of methane trapped in hydrate, scientists believe today we are talking about an enormous resource.

According to the U.S. Geological Survey, worldwide estimates of the natural gas potential of methane hydrates approach 400 million trillion cubic feet, as compared to the mere 5,000 trillion cubic feet that make up the world's known gas reserves. This huge potential illustrates the interest in advanced technologies that may reliably and cost effectively detect and produce natural gas from methane hydrates.

I would like to add that the technology that is needed for this will involve some form of deep seabed mining, which is an area and a concern of interest to those of us in the Pacific.

On a cautionary note, we should be mindful that although methane is relatively clean burning, it is a fossil fuel. So removing it from its safe haven on the ocean floor and burning it will release carbon in the form of carbon dioxide into the atmosphere. Methane hydrates near offshore drilling rigs also may pose a threat through substances on the ocean floor. For instance, if a drilling rig were hit by shifting or deep pressurization of the methane hydrates underneath it, the impact on the rig and the workers aboard could be disastrous.

This is worthwhile legislation. It is something we need as a country to get going on, because I believe other coun-

tries are developing the technology to deal with this.

Mr. DOYLE. Mr. Speaker, I yield myself the balance of my time.

I too want to thank the gentleman from California (Mr. CALVERT) for his words of support and express my appreciation for his good work not only on science issues but on veterans issues as well.

As I mentioned in my opening remarks, the potential for significant benefit to consumers, the environment, and business exist in methane hydrate research. I want my colleagues to listen to and consider the following: it has been projected that the U.S. gas consumption is expected to increase by 40 percent by the year 2020. Couple this with the fact that currently more than half of the present U.S. oil supply is imported and without natural gas production our oil import volume would be much larger. But if only 1 percent of the methane hydrate resource could be made removable, the United States could more than double its domestic natural gas resource base.

As numerous scientists, as well as the President's Committee of Advisors on Science and Technology have noted, natural gas will remain a principal energy source well into the next century. This is partly attributable to the increasing pressure for clean fuels. As methane from hydrates is essentially a pure methane, which is free of sulfur, nitrogen, and other contaminants, it is the cleanest burning of all fossil fuel resources. Subsequently, its utilization could be a key factor in mitigating global warming concerns.

Needless to say, when a new abundant resource is found that meets a growing demand with a greater level of efficiency, consumers will not only have a greater selection of options but more affordable costs as well. It is time we begin to avail ourselves of the potential resources brought to bear through intensive methane hydrate research, just as Japan, India, the United Kingdom, Germany, Brazil, and Norway are currently active in doing through their individual methane hydrate programs.

Mr. Speaker, as much as methane hydrate research is a matter of global proportions, it is of equal importance to almost every region of our country. While large deposits have been identified and studied in Alaska, the West Coast from California to Washington, the Blake Ridge offshore of the Carolinas, and in the Gulf of Mexico, activity and interest has been demonstrated in numerous other locations.

In the area of western Pennsylvania that I represent, Gerald Holder at the University of Pittsburgh, and the Pittsburgh Energy Technology Center, have a long history in hydrate research. Efforts are also underway at Penn State University, the Colorado School of Mines, the Georgia Institute of Technology, the Massachusetts Institute of Technology, Brookhaven National Lab, Texas A&M University, the

Monterey Bay Aquarium Research Institute, and the South Dakota School of Mines and Technology are just a few of the various other organizations that have a vested interest in methane hydrate research.

I also want to make particular mention of the work that is being done at the University of Hawaii and again recognize Senator AKAKA for his efforts in advancing similar legislation in the Senate.

Mr. Speaker, H.R. 1753 presents a thoughtful and common sense approach to expanding future energy choices. Through continued pursuit of progress in science and technology, we can assist in providing future generations with an abundant supply of a clean and reasonably priced energy source.

I urge my colleagues to support the Gas Hydrate Research and Development Act, and I thank my chairman, the gentleman from Wisconsin (Mr. SENSENBRENNER), for his support and his help.

Mr. Speaker, I submit the statement of Senator AKAKA in support of H.R. 1753 for the RECORD.

REMARKS OF SENATOR DANIEL K. AKAKA
REGARDING METHANE HYDRATE LEGISLATION

I believe that H.R. 1753, and the Senate counterpart bill, S. 330, are important energy research bills that Congress should enact this session. Methane hydrate research has strong, bipartisan support. Senators Lott, Graham, Craig and Landrieu have cosponsored S. 330.

The discovery of methane hydrates presents a research and development opportunity with major energy security implications. The bill will serve the long-term goal of developing new energy supplies as well as the near-term goal of increased safety and recovery of conventional oil and gas.

Significant, widespread deposits of gas hydrates have been detected, but have not been characterized, all over the globe. The data on this resource may surprise you.

Worldwide, the amount of methane trapped in gas hydrate form is estimated to be 10,000 gigatons—twice the carbon found in all other fossil fuels and 3,000 times the amount of methane present in the atmosphere. Scientists at the U.S. Geological Survey estimate that 320,000 trillion cubic feet of natural gas exists in methane hydrate form in the U.S.—a staggering resource.

In the United States, on-shore deposits are found in the arctic regions of Alaska. However, deep sea methane hydrate deposits are the most abundant source of methane, occurring at depths greater than 300 meters. Marine geologists have identified large deposits off the coasts of Alaska, Louisiana, Texas, New Jersey, Oregon and North and South Carolina.

Research is needed to determine whether we can produce natural gas from these vast reserves. Natural gas from methane hydrates will never be realized unless we undertake a serious research and development program outlined in these bills.

The U.S. currently lags other countries in exploring this exciting new energy source. Japan and India have launched aggressive R&D programs to explore methane hydrates. Some believe that Japanese commercial production is only a decade away. Clearly we are falling behind in our efforts to understand this energy source. In the face of dwindling energy resources and increased reliance on energy imports, we can hardly afford to miss this important opportunity.

In addition to potential use as an energy source, methane hydrate deposits also represent a challenge to conventional oil and gas extraction. Hydrates influence physical properties of ocean sediments, particularly strength and stability. Characterizing hydrate formation and breakdown is important for the safety of deep offshore drilling and other deep sea operations.

Given these research, technology, and energy security considerations, it would be shortsighted not to invest in our future by assessing and developing gas hydrates. I urge you to pass H.R. 1753.

Ms. JACKSON-LEE of Texas. Mr. Speaker, I support H.R. 1753, the Methane Hydrate Research and Development Act of 1999. This measure will promote the research, identification, assessment, exploration, and development of methane hydrate resources.

As a Member of the House Science Committee, I recognize the importance of our natural resources. And as a Houstonian and Texan, I have a vested interest in natural and fossil fuels.

Natural gas is an important source of clean efficient energy. Today, natural gas comes primarily from geological formations in which methane molecules—the primary component of natural gas—exist in the form of gas.

Methane also exists in ice-like formations called hydrates. Hydrates trap methane molecules inside a cage of frozen water. Hydrates are found on or under seabeds and under permafrost.

The amount of methane trapped in hydrates is largely unknown, but it is very large. A number of scientists believe that hydrates contain more than twice as much energy as all the world's coal, oil, and natural gas combined.

Currently, we do not know how to produce a meaningful amount of energy from hydrates. Scientists around the world are trying to discover cost effective production methods. They are also trying to assess the size of the resource base, to explore problems hydrates cause during the production of offshore natural gas, and to explore additional uses for hydrates.

If scientists can find a way to safely extract the gas, they will have tapped an enormous new clean-burning energy supply. This act direct the Secretary of Energy to commence a gas hydrate research and development program. In conjunction with the Secretaries of Defense and the Interior, along with the Director of the NSF, the Secretary of Energy is to commence this research. This measure will allow the Secretary to award grants or contracts or even enter into cooperative agreements with institutions of higher education and industrial enterprises to conduct basic and applied research, to identify, explore, assess, and develop gas hydrate as a source of energy.

Mr. Speaker, it is vital that we continue to search for new sources of energy that will reduce our dependence on foreign sources, further protecting our energy security, and that will protect the environment from further harm.

Mr. MASCARA. Mr. Speaker, in an era of increasingly volatile energy prices and dwindling energy resources, it is imperative that the U.S. fund research for alternative energy sources now so that we are not left out in the cold when the cost of or inaccessibility to traditional fossil fuels makes heating our homes and fueling our factories impossible. H.R. 1753, the Methane Hydrate Research and De-

velopment Act of 1999, attempts to stave off that threat by directing the Secretary of Energy to coordinate a research and development program with the Secretaries of Defense, Interior and the Director of the National Science Foundation to develop methane hydrate resources.

Methane hydrate, a frozen mixture of methane and water, is found in sea sediments of the outer continental regions under unstable, high pressure conditions and in arctic regions where permafrost conditions exist. Methane hydrate, once safely extracted from these regions promises to become a viable source of alternative energy. The most promising area of research seems to be in harvesting methane hydrates from the outer continental regions. A 1997 U.S. Geological Survey appraisal of natural gas hydrate resources in the U.S. estimated that about 200,000 trillion cubic feet exist. It has been estimated that one 50 by 150 kilometer area off the coast of North and South Carolina could supply the energy needs of the United States for over 70 years.

Unfortunately these estimates do us no good without investments to develop the technology to safely and economically harvest methane hydrates. Passage of H.R. 1753 is a crucial first step to developing economical and ecologically sensitive technology that allows the United States to meet our energy needs in the 21st century. I support passage of H.R. 1753 and urge my colleagues to support passage of this important legislation.

Mr. DOYLE. Mr. Speaker, I have no further requests for time, and I yield back the balance of my time.

Mr. SENSENBRENNER. Mr. Speaker, I have no further requests for time, and I yield back the balance of my time.

The SPEAKER pro tempore (Mr. BONILLA). The question is on the motion offered by the gentleman from Wisconsin (Mr. SENSENBRENNER) that the House suspend the rules and pass the bill, H.R. 1753, as amended.

The question was taken; and (two-thirds having voted in favor thereof) the rules were suspended and the bill, as amended, was passed.

The title of the bill was amended so as to read: "A bill to promote the research, identification, assessment, exploration, and development of gas hydrate resources, and for other purposes."

A motion to reconsider was laid on the table.

MESSAGE FROM THE PRESIDENT

A message in writing from the President of the United States was communicated to the House by Mr. Sherman Williams, one of his secretaries.

FURTHER MESSAGE FROM THE
SENATE

A further message from the Senate by Mr. Lundregan, one of its clerks, announced that pursuant to Public Law 100-696, the Chair, on behalf of the Democratic Leader, announces the appointment of the Senator from California (Mrs. FEINSTEIN) as a member of the United States Capitol Preservation