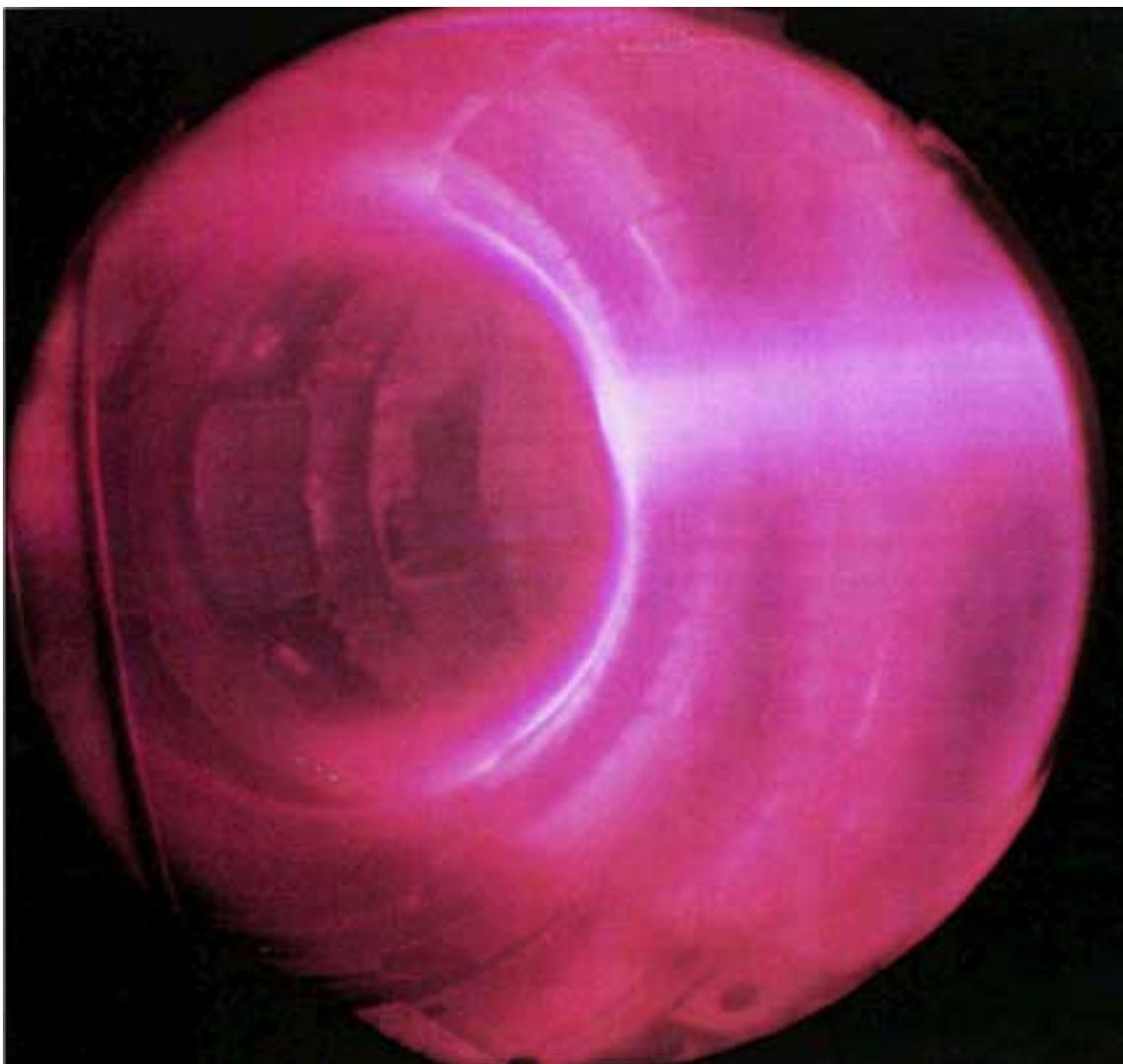


FUSION ENERGY SCIENCES ACT OF 2001

Legislation to invest in a long-term
solution to our energy needs



Representative Zoe Lofgren
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NEWS

House Science Committee, Democratic Membership

Mail address:

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http://www.house.gov/science_democrats/welcome.htm

*****PRESS CONFERENCE ADVISORY*****

ANNOUNCEMENT OF FUSION ENERGY BILL

Lofgren Calls For Investment to Tap New Energy

(Washington, DC)- Congresswoman Zoe Lofgren (D-CA, Science Committee) along with co-sponsors of the Fusion Energy Sciences Act of 2001 and others will be holding a press conference in front of the Capitol Hill Power Plant. Invited co-sponsors include: **Reps. Ken Calvert (R-CA), Randy "Duke" Cunningham (R-CA), Darrell Issa (R-CA), Rush Holt (D-NJ), Ralph Hall (D-TX), and Bart Gordon (D-TN)**. The legislation would provide for a roadmap for a burning plasma experiment, the first step to a commercially viable fusion energy power plant. The bill would also call for increased federal support for fusion energy research.

What is Fusion? Fusion energy is seen as a limitless and environmentally safe energy source and a possible long-term solution to our growing energy needs. Fusion is the energy that powers the sun and the stars. Basically, it is the fusion of two small atoms into a larger atom. When these two atoms fuse, a tremendous amount of energy is released. This energy can be harnessed to generate electricity. How likely is fusion energy? Significant amounts of fusion energy have been created in the laboratory throughout the world. More research is needed to take fusion out of the lab and make it commercially viable.

FUSION ENERGY PRESS CONFERENCE

Wednesday, May 9 at 2:30PM

2 Blocks from Capitol

**House of Reps. Parking Lot 10 in front of Capitol Hill Power Plant
Ivy Street SE between New Jersey Avenue and South Capitol Street
(across the street from DNC building)**

(Rain Site: Thursday 10:30AM Rayburn 2325)

For more information or directions contact

Toni Wehman 202-225-3072

News Release From

U.S. Congresswoman Zoe Lofgren

16th Congressional District, California

zoelofgren.house.gov/

FOR IMMEDIATE RELEASE
May 9, 2001

CONTACT: Toni Wehman
(202) 225-3072

SATELLITE FEED ADVISORY

ANNOUNCEMENT 'OF FUSION ENERGY BILL

Lofgren Calls For Investment to Tap New Energy

(Washington, DC)- Congresswoman Zoe Lofgren (D-CA) along with co-sponsors of the Fusion Energy Sciences Act of 2001 and others will be holding a press event in front of the Capitol Hill Power Plant. Invited co-sponsors include: Reps. George Nethercutt (R-WA), Ken Calvert (R-CA), Randy "Duke" Cunningham (R-CA), Darrell Issa (R-CA), Mike Honda (D-CA), Rush Holt (D-NJ), Ralph Hall (D-TX), and Bart Gordon (D-TN). The legislation would provide for a roadmap for a burning plasma experiment, the first step to a commercially viable fusion energy power plant. The bill would also call for increased federal support for fusion energy research.

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How likely is fusion energy? Significant amounts of fusion energy have been created in laboratories throughout the world. More research is needed to take fusion out of the lab and making it commercially viable.

FUSION ENERGY PRESS EVENT

Satellite Uplink Time: **4:30-4:45pm** Eastern Time or **1:30** Pacific Time

Coordinates:

Galaxy 4

Transponder 22

Vertical Downlink 4140

For more information contact Toni Wehman 202-225-3072

News Release From

U.S. Congresswoman Zoe Lofgren

26th Congressional District, California

zoelofgren.house.gov/

FOR IMMEDIATE RELEASE
May 9, 2001

CONTACT: Toni Wehman
(202) 225-3072

LOFGREN ANNOUNCES FUSION ENERGY BILL

Calls For Investment in Potential Solution to Energy Crisis

(Washington, DC)- Today, Congresswoman Zoe Lofgren (D-CA) introduced legislation that would speed up the development of a commercially viable fusion energy power plant. Co-sponsors of the legislation include Reps. George Nethercutt (R-WA), Ken Calvert (R-CA), Randy "Duke" Cunningham (R-CA), Darrell Issa (R-CA), Tom Davis (R-VA), Mike Honda (D-CA), Rush Holt (D-NJ), Ralph Hall (D-TX), Bart Gordon (D-TN), Jane Harmon (D-CA), Barbara Lee (D-CA), John Olver (D-MA), Ellen Tauscher (D-CA), and Susan Davis (D-CA). The bill would commit more federal support for fusion energy research. Fusion energy is seen as an ideal energy source and a possible solution to our growing energy needs.

"We need to look forward and invest in new energy technologies and research," said Lofgren. "Currently, we appear to be looking backward to traditional energy sources like coal, oil, gas, and nuclear power. We need to also look forward to science and new technologies for energy solutions. Fusion is a safe, clean, reliable source of energy that may help us meet our long-term energy needs."

Fusion energy is basically the combination or fusion of two atoms into a larger atom which results in the release of tremendous amounts of energy. This energy could be harnessed to produce immense amounts of electricity. Fusion would produce no air pollution. It would be safe and cannot blow up or cause a melt down. In addition, its fuel source is the hydrogen found in water which is abundant and no group of nations would have a cartel.

In the past decade, significant fusion energy discoveries have been made. However despite this progress, the U.S. fusion science budget has been cut by 40% in recent years. In addition, no new fusion energy experimental equipment has been built in this country in over 20 years.

"I am hopeful that this nation, a world leader in science research, can make fusion energy available on a large scale," added Lofgren. "Investing in fusion research has the long-term promise of giving millions of people access to an affordable and reliable energy source. We all deserve the best energy future not simply a return to the past."

MORE INFORMATION AND PICTURES OF THE EVENT CAN BE FOUND ON OUR WEBSITE

<http://zoelofgren.house.gov/>



Today's News Headlines

*California's 51st District
Congressman*

**Randy "Duke"
CUNNINGHAM**

FOR IMMEDIATE RELEASE:
May 9, 2001

CONTACT: Harmony Allen
(202) 225-5452

CUNNINGHAM SUPPORTS FUSION ENERGY BILL

WASHINGTON- Congressman Randy "Duke" Cunningham (R-San Diego) joined a bipartisan coalition of House Members led by Congresswoman Zoe Lofgren (D-CA) today to introduce a bill to strengthen U.S. fusion research and accelerate planning for the next step towards practical fusion energy.

The Fusion Energy Sciences Act of 2001 will provide a roadmap for a burning plasma experiment, the first step to a commercially viable fusion energy power plant. The bill also calls for increased federal support for fusion energy research. Fusion research has long been considered a limitless and environmentally safe energy source **and** a possible long-term solution to our growing energy needs. Fusion is the energy source that powers our sun. At its most basic, it is the combining or fusion of two small atoms into a larger atom. When two atomic nuclei fuse, tremendous amounts of energy are released.

If proven possible, fusion will be close to the ideal energy source: it is safe, produces no air pollutants, and its fuel source is practically unlimited. Debate has ceased about whether controlled fusion can be created on earth. Significant amounts of fusion energy are created with regularity in laboratories. The remaining question is whether fusion can make the challenging step from the laboratory to a practical energy source. Achieving this goal will require high quality science and innovative research.

"I want to thank Congresswoman Lofgren for her initiative in moving forward with this bill. Although fusion energy will not solve today's pressing energy crisis in California, fusion is an excellent prospect for the future. Californians know all too well that short, medium and long range planning are critical in meeting energy needs. We must have a long-range vision of what is possible for the future," said Congressman Cunningham.

"The Fusion Energy Sciences Act of 2001 will strengthen the ongoing fusion research program in this country and require the Department of Energy to develop a plan for taking the next step," added Cunningham.

San Diego is home to some of the nation's leading fusion research facilities, including research done at UCSD and General Atomics in La Jolla.

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NEWS From:

Congressman Mike Honda

FIFTEENTH DISTRICT CALIFORNIA



For Immediate Release
May 9, 2001

Contact: Ernest Baynard
(202) 225-263 1

LOFGREN, HONDA ANNOUNCE FUSION ENERGY BILL

South Bay Members Join with California Colleagues to Form Long-Term Energy Solution

Washington, DC- Today, South Bay Members of Congress Zoe Lofgren (D-San Jose) and new Science Committee member, Rep. Mike Honda (D-San Jose) announced legislation that would commit more federal support for fusion energy research in order to speed up the development of a commercially viable fusion energy power plant in the United States. Co-sponsors of the legislation include Ken Calvert (R-CA), Randy "Duke" Cunningham (R-CA), Darrell Issa (R-CA), Ralph Hall (D-TX), Bart Gordon (D-TN), Jane Harman (D-CA), Barbara Lee (D-CA), John Olver (D-MA), Ellen Tauscher (D-CA), and Susan Davis (D-CA). Many experts see fusion energy as an ideal energy source and a cleaner, more efficient solution to the nation's growing energy needs.

"As a member of the Science Committee, I strongly support this important, common-sense measure that will provide needed federal funding for the development of fusion energy to help to meet our energy needs over the course of the next century," said Honda. **"As we have recently seen in California, without an adequate energy supply, prosperity suffers. Any long-term solution to our energy crisis must be based upon sound science and innovation, not politics as usual."**

Fusion energy is basically the combination or fusion of two atoms into a larger atom that results in the release of tremendous amounts of energy. This energy could be harnessed to produce immense amounts of electricity. Studies have shown that fusion would produce no air pollution and would be safe and cannot blow up or cause a melt down. The fuel source for fusion energy is a common form of hydrogen found in a resource we have in abundance- water.

In the past decade, significant fusion energy discoveries have been made. However despite this progress, the U.S. fusion science budget has been cut by 40% in recent years. In addition, no new fusion energy experimental equipment has been built in this country in over 20 years.

"As a Member of Congress from the Bay Area, I am proud to represent a State and a region that is on the cutting edge of fusion research," continued Honda. **"Academic institutions and national laboratories in California are undertaking groundbreaking research in magnetic fusion and inertial fusion research. This important work merits strong federal support- our future depends upon it."**



ATTENTION: NEWS EDITOR

Contacts: Mark Haynes (202) 496-8209
David Baldwin (858) 455-2490

FOR IMMEDIATE RELEASE

May 8, 2001

GENERAL ATOMICS APPLAUDS INTRODUCTION OF FUSION BILL

SAN DIEGO, CA On Wednesday, May 9th a bipartisan coalition of Members of the House of Representatives led by Congresswoman Zoe Lofgren (D-CA) plans to introduce a bill to strengthen U.S. fusion research and to initiate planning for the next step towards practical fusion energy. Congressmen Ken Calvert (R-CA), Randy "Duke" Cunningham (R-CA), Ralph Hall (D-TX), Rush Holt (D-NJ) and Congressman Darrell Issa (R-CA) among others will join Congresswoman Lofgren in sponsoring the bill. At 2:30 p.m. on May 9th Congresswoman Lofgren and other Members will conduct a press conference on the bill (see below).

General Atomics, a diversified technology company with a 40 year history in fusion research, currently operates the nation's largest fusion energy experiment in the U.S. at its San Diego headquarters: the DIII-D (pronounced "dee 3 dee") National Fusion Facility.

Although practical fusion power is still many years away, profound scientific progress made at the General Atomics DIII-D facility and elsewhere in the U.S. and overseas has removed any doubt about the ability to create fusion energy.. The challenge ahead is to do the scientific and technological work required to make fusion a practical and affordable energy source.

The bill being introduced by Congresswoman Lofgren and others has two primary objectives: first, to strengthen the existing U.S. fusion research program which has suffered substantial budget cuts during the past decade and second, to make necessary plans for the next step towards practical fusion: a so called magnetic fusion "burning plasma" experiment.

All known fusion reactions take place in extremely hot ionized gasses called "plasmas". The sun and stars are themselves huge fusion reactors made up of plasma. One of the most common ways of creating fusion reactions on earth is to confine hot plasmas with strong magnetic fields in experimental devices such as the DIII-D facility. To date, all fusion experiments have required that large amounts of energy be injected into them to keep the fusion reaction going, much like a campfire with a blowtorch on it. A burning plasma, experiment on the other hand, generates heat via the fusion process. A fully ignited burning plasma would, therefore, be much like a campfire that can burn on its own without the blowtorch.

Dr. David Baldwin, leader of the General Atomics fusion research program said "In addition to a much needed strengthening of the U.S. fusion energy sciences program, the Lofgren bill calls for the Department of Energy to submit to Congress a plan for U.S.

(more)

participation in a domestic and possibly international burning plasma experiment. It is time to make serious plans for this step and to move forward. The scientific knowledge we will gain from such an experiment will be invaluable and will lay the groundwork for what we all hope will be an important contributor to world energy supplies later this century.”

Baldwin added: “Although the burning plasma experiment contemplated in this bill could not be located at General Atomics we know this bill is the right thing to do for fusion and for the nation and we applaud Congresswoman Lofgren and these other farsighted Members of Congress for their action.”

Congresswoman Lofgren will be joined by other Members of Congress for a press conference on the bill’s introduction on Wednesday, May 9th @ 2:20 p.m. EST in House of Representatives Parking Lot #10 across from the Capitol Hill Power Plant In the event of rain, the press conference will be held on Thursday, May 10th at 10:30 a.m. in Room 2325 Rayburn House Office Building (The House Science Committee &lain Hearing Room). Please Contact Toni Wehman of Congresswoman Lofgren’s staff at (202) 225-3072

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RECENT STUDIES ON FUSION R&D

President's Committee of Advisors on Science and Technology

July, 1995 PCAST study entitled "The U.S. Program of Fusion Energy Research and Development" concluded:

"Funding for fusion energy R&D by the Federal government is an important investment in the development of an attractive and possibly essential new energy source for this country and the world in the middle of the next century and beyond."

The 1995 report also recommended a minimum annual budget of \$320 for fusion.

September, 1997 PCAST report entitled "Federal Energy Research and Development for the Challenges of the 21st Century" reconfirmed recommendations of the 1995 PCAST report.

Secretary's Energy Advisory Board

September, 1999 report entitled "Realizing the Promise of Fusion Energy" concludes:

- **" the threshold scientific question - - namely, whether a fusion system producing sufficient net energy gain to be attractive as a commercial power source can be sustained and controlled - - can and will be solved."**

"In light of the promise of fusion and the risks arising from increasing worldwide energy demand and from eventually declining fossil energy supply, it is our view that we should pursue fusion energy aggressively."

National Research Council

Early 2001 report entitled "An Assessment of the Department of Energy's Office of Fusion Energy Sciences Program" focused on the quality of fusion energy sciences research and provide direction for the future. With regard to the quality of fusion science itself, the report concludes:

- **"...the quality of the science funded by the United States fusion research program in pursuit of a practical source of power from fusion (the fusion energy goal) is easily on a par with the quality in other leading areas of contemporary physical science."**

With regard to directions, the report recommends broadening the scientific base of fusion and its interaction with other branches of science. In addition, the report recommends that:

- **"Increasing our scientific understanding of fusion-relevant plasmas should become a central goal of the U.S. fusion energy program on a par with the goal of developing fusion energy technology..."** and that

- **"Solid support should be developed within the broad scientific community for U.S. investment in a burning plasma experiment."**