To enhance energy conservation, research and development and to provide for security and diversity in the energy supply for the American people, and for other purposes.

A BILL

To enhance energy conservation, research and development and to provide for security and diversity in the energy supply for the American people, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SEC. 1. SHORT TITLE AND TABLE OF CONTENTS.

(a) Short Title.—This Act may be cited as the “Securing America’s Future Energy Act of 2001” or the “SAFE Act of 2001”.

The bill is 510 pages long, only the Fusion section is included here.
$293,000,000 for fiscal year 2003, and $305,000,000 for
fiscal year 2004, to remain available until expended.

(b) LIMITS ON USE OF FUNDS.—None of the funds
authorized to be appropriated in subsection (a) may be
used for—

(1) Gas Hydrates.

(2) Fossil Energy Environmental Restoration;
or

(3) research, development, demonstration, and
commercial application on coal and related tech-
ologies, including activities under subtitle A.

TITLE V—SCIENCE
Subtitle A—Fusion Energy
Sciences

SEC. 2501. SHORT TITLE.

This subtitle may be cited as the “Fusion Energy
Sciences Act of 2001”.

SEC. 2502. FINDINGS.

The Congress finds that—

(1) economic prosperity is closely linked to an
affordable and ample energy supply;

(2) environmental quality is closely linked to en-
ergy production and use;

(3) population, worldwide economic develop-
ment, energy consumption, and stress on the envi-
vironment are all expected to increase substantially in
the coming decades;

(4) the few energy options with the potential to
meet economic and environmental needs for the
long-term future should be pursued as part of a bal-
anced national energy plan;

(5) fusion energy is an attractive long-term en-
ergy source because of the virtually inexhaustible
supply of fuel, and the promise of minimal adverse
environmental impact and inherent safety;

(6) the National Research Council, the Presi-
dent’s Committee of Advisers on Science and Tech-
nology, and the Secretary of Energy Advisory Board
have each recently reviewed the Fusion Energy
Sciences Program and each strongly supports the
fundamental science and creative innovation of the
program, and has confirmed that progress toward
the goal of producing practical fusion energy has
been excellent, although much scientific and engi-
neering work remains to be done;

(7) each of these reviews stressed the need for
a magnetic fusion burning plasma experiment to ad-
dress key scientific issues and as a necessary step in
the development of fusion energy;
(8) the National Research Council has also called for a broadening of the Fusion Energy Sciences Program research base as a means to more fully integrate the fusion science community into the broader scientific community; and

(9) the Fusion Energy Sciences Program budget is inadequate to support the necessary science and innovation for the present generation of experiments, and cannot accommodate the cost of a burning plasma experiment constructed by the United States, or even the cost of key participation by the United States in an international effort.

SEC. 2503. PLAN FOR FUSION EXPERIMENT.

(a) PLAN FOR UNITED STATES FUSION EXPERIMENT.—The Secretary, on the basis of full consultation with the Fusion Energy Sciences Advisory Committee and the Secretary of Energy Advisory Board, as appropriate, shall develop a plan for United States construction of a magnetic fusion burning plasma experiment for the purpose of accelerating scientific understanding of fusion plasmas. The Secretary shall request a review of the plan by the National Academy of Sciences, and shall transmit the plan and the review to the Congress by July 1, 2004.

(b) REQUIREMENTS OF PLAN.—The plan described in subsection (a) shall—
(1) address key burning plasma physics issues; and

(2) include specific information on the scientific capabilities of the proposed experiment, the relevance of these capabilities to the goal of practical fusion energy, and the overall design of the experiment including its estimated cost and potential construction sites.

(e) UNITED STATES PARTICIPATION IN AN INTERNATIONAL EXPERIMENT.—In addition to the plan described in subsection (a), the Secretary, on the basis of full consultation with the Fusion Energy Sciences Advisory Committee and the Secretary of Energy Advisory Board, as appropriate, may also develop a plan for United States participation in an international burning plasma experiment for the same purpose, whose construction is found by the Secretary to be highly likely and where United States participation is cost effective relative to the cost and scientific benefits of a domestic experiment described in subsection (a). If the Secretary elects to develop a plan under this subsection, he shall include the information described in subsection (b), and an estimate of the cost of United States participation in such an international experiment. The Secretary shall request a review by the National Academies of Sciences and Engineering.
of a plan developed under this subsection, and shall trans-
mit the plan and the review to the Congress not later than
July 1, 2004.

(d) Authorization of Research and Development.—The Secretary, through the Fusion Energy
Sciences Program, may conduct any research and develop-
ment necessary to fully develop the plans described in this
section.

SEC. 2504. PLAN FOR FUSION ENERGY SCIENCES PRO-
GRAM.

Not later than 6 months after the date of the enact-
ment of this Act, the Secretary, in full consultation with
FESAC, shall develop and transmit to the Congress a plan
for the purpose of ensuring a strong scientific base for
the Fusion Energy Sciences Program and to enable the
experiments described in section 2503. Such plan shall in-
clude as its objectives—

(1) to ensure that existing fusion research fa-
cilities and equipment are more fully utilized with
appropriate measurements and control tools;

(2) to ensure a strengthened fusion science the-
ory and computational base;

(3) to ensure that the selection of and funding
for new magnetic and inertial fusion research facili-
ties is based on scientific innovation and cost effec-
tiveness;

(4) to improve the communication of scientific
results and methods between the fusion science com-
community and the wider scientific community;

(5) to ensure that adequate support is provided
to optimize the design of the magnetic fusion burn-
ing plasma experiments referred to in section 2503;

(6) to ensure that inertial confinement fusion
facilities are utilized to the extent practicable for the
purpose of inertial fusion energy research and devel-

(7) to develop a roadmap for a fusion-based en-
ergy source that shows the important scientific ques-
tions, the evolution of confinement configurations,
the relation between these two features, and their re-
lation to the fusion energy goal;

(8) to establish several new centers of excel-
ence, selected through a competitive peer-review
process and devoted to exploring the frontiers of fu-
sion science;

(9) to ensure that the National Science Foun-
dation, and other agencies, as appropriate, play a
role in extending the reach of fusion science and in
sponsoring general plasma science; and
(10) to ensure that there be continuing broad
assessments of the outlook for fusion energy and
periodic external reviews of fusion energy sciences.

SEC. 2505. AUTHORIZATION OF APPROPRIATIONS.
There are authorized to be appropriated to the Sec-
retary for the development and review, but not for imple-
mentation, of the plans described in this subtitle and for
activities of the Fusion Energy Sciences Program
$320,000,000 for fiscal year 2002 and $335,000,000 for
fiscal year 2003, of which up to $15,000,000 for each of
fiscal year 2002 and fiscal year 2003 may be used to es-
tablish several new centers of excellence, selected through
a competitive peer-review process and devoted to exploring
the frontiers of fusion science.

Subtitle B—Spallation Neutron
Source

SEC. 2521. DEFINITION.
For the purposes of this subtitle, the term “Spall-
ation Neutron Source” means Department Project 99–E–
334, Oak Ridge National Laboratory, Oak Ridge, Ten-
nessee.

SEC. 2522. AUTHORIZATION OF APPROPRIATIONS.
(a) Authorization of Construction Funding.—
There are authorized to be appropriated to the Secretary
for construction of the Spallation Neutron Source—