### EN BLOC AMENDMENTS TO H.R. 238 OFFERED BY MR. BOEHLERT AND MR. HALL

Page 2, line 3, through page 17, line 17, redesignate sections 101 through 103 as sections 2 through 4, respectively, and move them to after section 1.

Page 2, line 4, strike "title" and insert "Act".

Page 3, line 6, strike "title" and insert "Act".

Page 4, lines 17 through 20, amend clause (v) to read as follows:

1	(v) by 2020, meeting the goal de-
2	scribed in section $103(a)(2)$ of the Spark
3	M. Matsunaga Hydrogen Research, Devel-
4	opment, and Demonstration Act of 1990.

Page 6, line 11, strike "2007" and insert "2012".

Page 6, line 17, strike "\$4,000" and insert "\$5,000".

Page 6, line 20, strike "ELECTRIC".

Page 7, line 12, strike "2006" and insert "2010".Page 7, line 14, strike "\$150" and insert "\$225".Page 7, line 15, strike "and".

April 1, 2003 F:\V8\040103\040103.109 Page 7, line 20, strike the period and insert "; and".

Page 7, before line 21, insert the following:

1	(iv) reducing the cost of installing the
2	ground loop of ground-source heat pumps
3	by $30$ percent by $2007$ compared to the
4	cost in 2000.

Page 7, lines 21 through 25, strike subparagraph (E) and redesignate the subsequent subparagraphs accordingly.

Page 8, line 8, strike "subparagraph (G)" and insert "subparagraph (F)".

Page 12, after line 2, insert the following new paragraph:

5 (6) HYDROGEN.—Carry out the Spark M. Mat6 sunaga Hydrogen Research, Development, and Dem7 onstration Act of 1990.

Page 13, line 4, strike "(5)" and insert "(6)".

Page 13, line 20, strike "title" and insert "Act".

Page 17, strike lines 1 and 2, and redesignate the subsequent subparagraphs accordingly.

Page 18, strike line 1, and redesignate the subsequent paragraphs accordingly.

Page 18, line 9, strike "\$10,000,000 for fiscal year 2003 and".

Page 18, after line 11, insert the following new paragraph, and redesignate the subsequent paragraphs accordingly:

1 (2)ELECTRIC CONTROL MOTOR TECH-2 NOLOGY.—For activities under section 106A, 3 \$2,000,000 for each of fiscal years 2004 through 4 2007.

Page 18, strike line 14, and redesignate the subsequent subparagraphs accordingly.

Page 18, strike line 21, and redesignate the subsequent subparagraphs accordingly.

Page 25, line 4, insert ", working with the National Institute of Building Sciences," after "Initiative".

Page 25, line 12, insert "be based on whole building principles and shall" after "plan shall".

Page 26, after line 20, insert the following new section:

#### 5 SEC. 106A. ELECTRIC MOTOR CONTROL TECHNOLOGY.

6 The Secretary shall conduct a research, development,7 demonstration, and commercial application program on

advanced control devices to improve the energy efficiency
 of electric motors used in heating, ventilation, air condi tioning, and comparable systems.

Page 31, line 12, through page 32, line 1, strike section 109.

Page 33, strike line 10, and redesignate the subsequent paragraphs accordingly.

Page 33, strike lines 17 through 19 and insert: "(a), the following sums shall be available for activities under section 114:

4	(1) For fiscal year 2004, \$5,000,000.
5	(2) For fiscal year 2005, \$5,500,000.
6	(3) For fiscal year 2006, \$6,000,000.
7	(4) For fiscal year 2007, \$6,500,000.

Page 34, line 21, strike "and".

Page 34, line 22, redesignate paragraph (4) as paragraph (5).

Page 34, after line 21, insert the following new paragraph:

8 (4) include research, development, demonstra-9 tion, and commercial application of interconnection 10 technologies for communications and controls of dis-11 tributed generation architectures, particularly tech-

nologies promoting real-time response to power mar ket information and physical conditions on the elec trical grid; and

Page 38, lines 2 and 3, strike ", including the amounts authorized under the amendments made by sections 124 and 125".

Page 38, strike line 4, and redesignate the subsequent paragraphs accordingly.

Page 38, line 5, strike "\$460,000,000" and insert "\$380,000,000".

Page 38, line 6, strike "\$510,000,000" and insert "\$420,000,000".

Page 38, line 7, strike "\$560,000,000" and insert "\$460,000,000".

Page 38, line 8, strike "\$609,000,000" and insert "\$499,000,000".

Page 38, strike line 13, and redesignate the subsequent paragraphs accordingly.

Page 38, line 18, redesignate subsection (c) as subsection (b).

Page 38, after line 17, insert the following new subsection:

(c) PUBLIC BUILDINGS.—From the amounts author ized under subsection (a), \$30,000,000 for each of the fis cal years 2004 through 2007 are authorized to be appro priated to carry out section 127.

Page 39, after line 9, insert the following new paragraph:

5 (4) REGIONAL FIELD VERIFICATION.—Of the
6 funds authorized under subsection (a), not less than
7 \$4,000,000 for each fiscal year shall be made avail8 able for the Regional Field Verification Program of
9 the Department.

Page 39, line 22, through page 56, line 22, strike part 3 and redesignate the subsequent part accordingly.

Page 57, line 3, before "The Secretary" insert "(a) PROGRAMS.—".

Page 57, after line 11, insert the following:

(b) STUDY.—(1) The Secretary shall enter into an
arrangement with the National Academy of Sciences to
conduct a study on—

(A) the feasibility of various methods of renewable generation of energy from the ocean, including
energy from waves, tides, currents, and thermal gradients; and

(B) the research, development, demonstration,
 and commercial application activities required to
 make marine renewable energy generation competi tive with other forms of electricity generation.

5 (2) Not later than 1 year after the date of the enact6 ment of this Act, the Secretary shall transmit the study
7 to the Congress along with the Secretary's recommenda8 tions for implementing the results of the study.

#### 9 SEC. 127. RENEWABLE ENERGY IN PUBLIC BUILDINGS.

10 (a) DEMONSTRATION AND TECHNOLOGY TRANSFER 11 PROGRAM.—The Secretary shall establish a program for 12 the demonstration of innovative technologies for solar and 13 other renewable energy sources in buildings owned or op-14 erated by a State or local government, and for the dissemi-15 nation of information resulting from such demonstration 16 to interested parties.

(b) LIMIT ON FEDERAL FUNDING.—The Secretary
shall provide under this section no more than 40 percent
of the incremental costs of the solar or other renewable
energy source project funded.

(c) REQUIREMENT.—As part of the application for
awards under this section, the Secretary shall require all
applicants—

1	(1) to demonstrate a continuing commitment to
2	the use of solar and other renewable energy sources
3	in buildings they own or operate; and
4	(2) to state how they expect any award to
5	futher their transition to the significant use of re-
6	newable energy.
	Page 57, lines 15 through 25, strike subsection (a)
a	nd insert the following:
7	(a) IN GENERAL.—The following sums are author-
8	ized to be appropriated to the Secretary for nuclear energy
9	research, development, demonstration, and commercial ap-
10	plication activities, including activities authorized under
11	this subtitle:
12	(1) For fiscal year 2004, \$388,000,000.
13	(2) For fiscal year 2005, \$416,000,000.
14	(3) For fiscal year 2006, \$445,000,000.
15	(4) For fiscal year 2007, \$474,000,000.
	Page 58, strike lines 1 through 8.
S	Page 58, line 9, redesignate subsection (c) as sub- ection (b).
	Page 58, strike lines 11 through 25, and insert the

following:

1	(1) NUCLEAR INFRASTRUCTURE SUPPORT.—
2	For activities under section 132(f)—
3	(A) for fiscal year 2004, \$125,000,000;
4	(B) for fiscal year 2005, \$130,000,000;
5	(C) for fiscal year 2006, \$135,000,000;
6	and
7	(D) for fiscal year 2007, \$140,000,000.
8	(2) Advanced fuel recycling program.—
9	For activities under section 133—
10	(A) for fiscal year 2004, \$80,000,000;
11	(B) for fiscal year 2005, \$93,000,000;
12	(C) for fiscal year 2006, \$106,000,000;
13	and
14	(D) for fiscal year 2007, \$120,000,000.
15	(3) University programs.—For activities
16	under section 134—
17	(A) for fiscal year 2004, \$35,200,000, of
18	which—
19	(i) \$3,000,000 shall be for activities
20	under subsection $(b)(1)$ of that section;
21	(ii) \$4,275,000 shall be for activities
22	under subsection $(b)(2)$ of that section;
23	(iii) \$8,000,000 shall be for activities
24	under subsection $(b)(3)$ of that section;

1	(iv) \$500,000 shall be for activities
2	under subsection (b)(5) of that section;
3	(v) $$7,000,000$ shall be for activities
4	under subsection $(c)(1)$ of that section;
5	(vi) \$700,000 shall be for activities
6	under subsection $(c)(2)$ of that section;
7	(vii) \$10,000,000 shall be for activi-
8	ties under subsection $(c)(3)$ of that section;
9	(viii) \$1,000,000 shall be for activities
10	under subsection $(d)(1)$ of that section;
11	and
12	(ix) \$725,000 shall be for activities
13	under subsection $(d)(2)$ of that section;
14	(B) for fiscal year 2005, \$44,350,000, of
15	which—
16	(i) \$3,100,000 shall be for activities
17	under subsection $(b)(1)$ of that section;
18	(ii) \$6,275,000 shall be for activities
19	under subsection $(b)(2)$ of that section;
20	(iii) \$12,000,000 shall be for activities
21	under subsection (b)(3) of that section;
22	(iv) \$550,000 shall be for activities
23	under subsection (b)(5) of that section;
24	(v) $$7,500,000$ shall be for activities
25	under subsection $(c)(1)$ of that section;

1	(vi) \$1,100,000 shall be for activities
2	under subsection $(c)(2)$ of that section;
3	(vii) \$12,000,000 shall be for activi-
4	ties under subsection $(c)(3)$ of that section;
5	(viii) \$1,100,000 shall be for activities
6	under subsection $(d)(1)$ of that section;
7	and
8	(ix) \$725,000 shall be for activities
9	under subsection $(d)(2)$ of that section;
10	(C) for fiscal year 2006, \$49,200,000, of
11	which—
12	(i) \$3,200,000 shall be for activities
13	under subsection $(b)(1)$ of that section;
14	(ii) \$7,150,000 shall be for activities
15	under subsection $(b)(2)$ of that section;
16	(iii) \$13,000,000 shall be for activities
17	under subsection (b)(3) of that section;
18	(iv) \$600,000 shall be for activities
19	under subsection $(b)(5)$ of that section;
20	(v) \$8,000,000 shall be for activities
21	under subsection $(c)(1)$ of that section;
22	(vi) \$1,200,000 shall be for activities
23	under subsection $(c)(2)$ of that section;
24	(vii) \$14,000,000 shall be for activi-
25	ties under subsection $(c)(3)$ of that section;

1	(viii) \$1,200,000 shall be for activities
2	under subsection $(d)(1)$ of that section;
3	and
4	(ix) \$850,000 shall be for activities
5	under subsection $(d)(2)$ of that section;
6	and
7	(D) for fiscal year 2007, \$54,950,000, of
8	which—
9	(i) \$3,200,000 shall be for activities
10	under subsection $(b)(1)$ of that section;
11	(ii) \$8,150,000 shall be for activities
12	under subsection $(b)(2)$ of that section;
13	(iii) \$15,000,000 shall be for activities
14	under subsection $(b)(3)$ of that section;
15	(iv) $$650,000$ shall be for activities
16	under subsection $(b)(5)$ of that section;
17	(v) $\$8,500,000$ shall be for activities
18	under subsection $(c)(1)$ ; of that section;
19	(vi) \$1,300,000 shall be for activities
20	under subsection (c)(2) of that section;
21	(vii) $$16,000,000$ shall be for activi-
22	ties under subsection $(c)(3)$ of that section;
23	(viii) \$1,300,000 shall be for activities
24	under subsection $(d)(1)$ of that section;
25	and

1	(ix) $\$850,000$ shall be for activities
2	under subsection $(d)(2)$ of that section.

Page 58, after line 25, insert the following new paragraph:

3	(3) Geological isolation of spent fuel.—
4	For activities under section 135—
5	(A) for fiscal year 2004, \$7,000,000;
6	(B) for fiscal year 2005, \$8,000,000;
7	(C) for fiscal year 2006, \$9,000,000; and
8	(D) for fiscal year 2007, \$10,000,000.

Page 59, line 1, redesignate subsection (d) as subsection (c).

Page 61, strike lines 5 through 8, and insert the following:

9 (e) NUCLEAR PRODUCTION OF HYDROGEN.—Pursu-10 ant to the Spark M. Matsunaga Hydrogen Research, De-11 velopment, and Demonstration Act of 1990, as amended 12 by subtitle H of this Act, the Secretary shall carry out 13 a program of research, development, demonstration, and 14 commercial application on various approaches to nuclear 15 production of hydrogen.

Page 63, line 21, strike "MAINTAINING" and insert "STRENGTHENING".

Page 64, line 7, insert ", through the Innovations in Nuclear Infrastructure and Education Program," after "providing funding".

Page 65, after line 2, insert the following:

# PART 5—GEOLOGICAL ISOLATION OF SPENT FUEL

3 SEC. 135. GEOLOGICAL ISOLATION OF SPENT FUEL.

4 (a) IN GENERAL.—The Secretary shall establish a
5 program to determine the feasibility of deep borehole dis6 posal of spent nuclear fuel and high-level radioactive
7 waste. The program shall emphasize geological, chemical,
8 and hydrological characterization of, and design of engi9 neered structures for, deep borehole environments.

10 (b) PLAN.—Not later than 6 months after the date 11 of enactment of this Act, the Secretary shall transmit to 12 the Congress a plan for the program under this section, 13 including milestones for achieving the purpose of the pro-14 gram.

(c) FINAL REPORT.—Not later than 5 years after the
date of enactment of this Act, the Secretary shall transmit
to the Congress a final report on the findings of the program under this section.

Page 65, lines 9 and 10, strike "including activities authorized under this subtitle, other than those described in subsection (b)" and insert "other than those described in subsection (b), including activities authorized under this subtitle but not including activities authorized under title V".

Page 65, strike line 11, and redesignate the subsequent paragraphs accordingly.

Page 65, line 12, strike "\$523,000,000" and insert "\$530,000,000".

Page 65, line 13, strike "\$542,000,000" and insert "\$556,000,000".

Page 65, line 14, strike "\$558,000,000" and insert "\$583,000,000".

Page 65, line 15, strike "\$585,000,000" and insert "\$611,000,000".

Page 65, after line 15, insert the following:

No less than 60 percent of the amount appropriated for
 each fiscal year under this subsection shall be available
 for activities related to the coal research program under
 section 142(a).

Page 65, line 19, strike "2003" and insert "2004".
Page 68, line 4, strike "2003" and insert "2004".
Page 68, line 13, strike "2003" and insert "2004".

Page 69, lines 20 through 23, strike "No funds" and all that follows through "has transmitted" and insert "Not later than 6 months after the date of enactment of this Act, the Secretary shall transmit".

Page 70, line 18, strike "The Secretary" and insert "In coordination with the programs described in the Spark M. Matsunaga Hydrogen Research, Development, and Demonstration Act of 1990, as amended by subtitle H of this Act, the Secretary".

Page 71, after line 11, insert the following new subsection:

(e) TECHNOLOGY TRANSFER.—To the maximum ex tent practicable, existing technology transfer mechanisms
 shall be used to implement oil and gas exploration and
 production technology transfer programs.

Page 73, lines 22 and 23, strike "section 144(b)(1) through (3)" and insert "subsection (b)".

Page 89, after line 8, add the following new section:

## 5 SEC. 150A. TRANSFER OF ADVANCED OIL AND GAS EXPLO-6 RATION AND PRODUCTION TECHNOLOGIES.

7 (a) ASSESSMENT.—The Secretary shall review tech8 nology programs throughout the Federal Government to
9 assess the suitability of technologies developed thereunder

for use in ultradeep drilling research, development, dem onstration, and commercial application.

3 (b) TECHNOLOGY TRANSFER.—Not later than 1 year 4 after the date of enactment of this Act, the Secretary shall 5 issue a solicitation seeking organizations knowledgeable of the technology needs of the ultradeep drilling industry. 6 7 The Secretary shall select the most qualified applicant to 8 manage a program to transfer technologies the Secretary 9 determines suitable under subsection (a) to appropriate 10 entities. The organization selected under section 145(d)shall not be eligible for selection under this subsection. 11

(c) FUNDING.—From the funds available under section 141(b)(3)(C), \$1,000,000 shall be available to carry
out this section in each of the fiscal years 2004 through
2007.

Page 89, line 13, strike "section" and insert "part".

Page 91, line 4, strike "(170(c)(2)(C)(ii))" and insert "(170(c)(2)(C))".

Page 91, strike line 10, and redesignate the subsequent paragraphs accordingly.

Page 91, line 13, strike "\$4,586,000,000" and insert "\$4,618,000,000".

Page 91, line 14, strike "\$5,000,000,000" and insert "\$5,310,000,000".

Page 91, lines 17 through 25, amend paragraph (1) to read as follows:

1	(1) FUSION ENERGY SCIENCES.—(A) For the
2	Fusion Energy Sciences Program, excluding activi-
3	ties under sections 161A and 162—
4	(i) for fiscal year 2004, \$276,000,000;
5	(ii) for fiscal year 2005, \$300,000,000;.
6	(iii) for fiscal year 2006, \$340,000,000;
7	and
8	(iv) for fiscal year 2007, \$350,000,000.
9	(B) For activities under section 161A and for
10	the project described in section 162—
11	(i) for fiscal year 2004, \$12,000,000;
12	(ii) for fiscal year 2005, \$20,000,000;
13	(iii) for fiscal year 2006, \$50,000,000; and
14	(iv) for fiscal year 2007, \$75,000,000.

Page 92, strike line 4, and redesignate the subsequent clauses accordingly.

Page 92, line 20, through page 93, line 21, amend paragraph (3) to read as follows:

15	(3) NANOTECHNOLOGY RESEARCH AND DEVEL-
16	OPMENT.—For activities under section 169—
17	(A) for fiscal year 2004, \$265,000,000;
18	(B) for fiscal year 2005, \$292,000,000;

1	(C)	for	fiscal	year	2006,	\$322,000,000;
2	and					

3 (D) for fiscal year 2007, \$355,000,000.

Page 93, lines 24 and 25, strike "plans described in sections 162 and 163" and insert "plan described in section 162".

Page 94, before line 2, insert the following new section:

#### 4 SEC. 161A. ITER.

5 (a) IN GENERAL.—The United States is authorized
6 to participate in ITER in accordance with the provisions
7 of this section.

8 (b) AGREEMENT.—(1) The Secretary is authorized to
9 negotiate an agreement for United States participation in
10 ITER.

(2) Any agreement for United States participation inITER shall, at a minimum—

(A) clearly define the United States financial
contribution to construction and operating costs;

(B) ensure that the share of ITER's high-technology components manufactured in the United
States is at least proportionate to the United States
financial contribution to ITER;

1	(C) ensure that the United States will not be fi-
2	nancially responsible for cost overruns in compo-
3	nents manufactured in other ITER participating
4	countries;
5	(D) guarantee the United States full access to
6	all data generated by ITER;
7	(E) enable United States researchers to propose
8	and carry out an equitable share of the experiments
9	at ITER;
10	(F) provide the United States with a role in all
11	collective decisionmaking related to ITER; and
12	(G) describe the process for discontinuing or
13	decommissioning ITER and any United States role
14	in those processes.
15	(c) PLAN.—The Secretary, in consultation with the
16	Fusion Energy Sciences Advisory Committee, shall de-
17	velop a plan for the participation of United States sci-
18	entists in ITER that shall include the United States re-
19	search agenda for ITER, methods to evaluate whether
20	ITER is promoting progress toward making fusion a reli-
21	able and affordable source of power, and a description of
22	how work at ITER will relate to other elements of the
23	United States fusion program. The Secretary shall request
24	a review of the plan by the National Academy of Sciences.

(d) LIMITATION.—No funds shall be expended for the
 construction of ITER, or for items related to the construc tion of ITER, until the Secretary has transmitted to the
 Congress—

5 (1) the agreement negotiated pursuant to sub6 section (b) and 120 days have elapsed since that
7 transmission;

8 (2) a report describing the management struc-9 ture of ITER and providing a fixed dollar estimate 10 of the cost of United States participation in the con-11 struction of ITER, and 120 days have elapsed since 12 that transmission;

(3) a report describing how United States participation in ITER will be funded without reducing
funding for other programs in the Office of Science,
including other fusion programs, and 60 days have
elapsed since that transmission; and

(4) the plan required by subsection (c) (but not
the National Academy of Sciences review of that
plan), and 60 days have elapsed since that transmission.

22 (e) DEFINITIONS.—In this section—

(1) the term "construction" means the physical
construction of the ITER facility, and the physical
construction, purchase, or manufacture of equipment

April 1, 2003 F:\V8\040103\040103.109

1	or components that are specifically designed for the
2	ITER facility, but does not mean the design of the
3	facility, equipment, or components; and
4	(2) the term "ITER" means the international

burning plasma fusion research project in which the
President announced United States participation on
January 30, 2003.

Page 94, line 2, through page 96, line 20, amend sections 162 and 163 to read as follows:

#### 8 SEC. 162. PLAN FOR FUSION EXPERIMENT.

9 (a) IN GENERAL.—If at any time during the negotia-10 tions on ITER, the Secretary determines that construction 11 and operation of ITER is unlikely or infeasible, the Sec-12 retary shall send to Congress, as part of the budget re-13 quest for the following year, a plan for implementing the domestic burning plasma experiment known as FIRE, in-14 15 cluding costs and schedules for such a plan. The Secretary shall refine such plan in full consultation with the Fusion 16 Energy Sciences Advisory Committee and shall also trans-17 18 mit such plan to the National Academy of Sciences for review. 19

- 20 (b) DEFINITIONS.—As used in this section—
- (1) the term "ITER" has the meaning giventhat term in section 161A; and

(2) the term "FIRE" means the Fusion Igni tion Research Experiment, the fusion research ex periment for which design work has been supported
 by the Department of Energy as a possible alter native burning plasma experiment in the event that
 ITER fails to move forward.

#### 7 SEC. 163. PLAN FOR FUSION ENERGY SCIENCES PROGRAM.

8 (a) DECLARATION OF POLICY.—It shall be the policy 9 of the United States to conduct research, development, 10 demonstration, and commercial application to provide for the scientific, engineering, and commercial infrastructure 11 12 necessary to ensure that the United States is competitive 13 with other nations in providing fusion energy for its own needs and the needs of other nations, including by dem-14 15 onstrating electric power or hydrogen production for the United States energy grid utilizing fusion energy at the 16 17 earliest date possible.

18 (b) FUSION ENERGY PLAN.—

(1) IN GENERAL.—Within 6 months after the
date of enactment of this Act, the Secretary shall
transmit to Congress a plan for carrying out the policy set forth in subsection (a), including cost estimates, proposed budgets, potential international
partners, and specific programs for implementing
such policy.

April 1, 2003 F:\V8\040103\040103.109

1	(2) REQUIREMENTS OF PLAN.—Such plan shall
2	also ensure that—
3	(A) existing fusion research facilities are
4	more fully utilized;
5	(B) fusion science, technology, theory, ad-
6	vanced computation, modeling, and simulation
7	are strengthened;
8	(C) new magnetic and inertial fusion re-
9	search facilities are selected based on scientific
10	innovation, cost effectiveness, and their poten-
11	tial to advance the goal of practical fusion en-
12	ergy at the earliest date possible;
13	(D) such facilities that are selected are
14	funded at a cost-effective rate;
15	(E) communication of scientific results and
16	methods between the fusion energy science com-
17	munity and the broader scientific and tech-
18	nology communities is improved;
19	(F) inertial confinement fusion facilities
20	are utilized to the extent practicable for the
21	purpose of inertial fusion energy research and
22	development; and
23	(G) attractive alternative inertial and mag-
24	netic fusion energy approaches are more fully
25	explored.

1	(3) Report on fusion materials and tech-
2	NOLOGY PROJECT.—In addition, the plan required
3	by this subsection shall also address the status of,
4	and to the degree possible, the costs and schedules
5	for—
6	(A) the design and implementation of
7	international or national facilities for the test-
8	ing of fusion materials; and
9	(B) the design and implementation of
10	international or national facilities for the test-
11	ing and development of key fusion technologies.

Page 98, line 25, through page 99, line 1, strike "2003, 2004, and 2005" and insert "2004, 2005, and 2006".

Page 99, line 4, through page 100, line 22, amend section 169 to read as follows:

### 12 SEC. 169. NANOTECHNOLOGY RESEARCH AND DEVELOP-13 MENT.

14 (a) IN GENERAL.—The Secretary, acting through the 15 Office of Science, shall implement a Nanotechnology Re-16 search and Development Program to promote nanotechnology research, development, demonstration, 17 18 education, technology transfer, and commercial applica-19 tion activities as necessary to ensure continued United

States leadership in nanotechnology across scientific and
 engineering disciplines.

3 (b) PROGRAM ACTIVITIES.—The activities of the
4 Nanotechnology Research and Development Program shall
5 be designed to—

6 (1)provide sustained for support 7 nanotechnology research and development through— 8 (A) grants to individual investigators and 9 interdisciplinary teams of investigators; and 10 (B) establishment of interdisciplinary re-11 search centers and advanced technology user fa-12 cilities;

(2) ensure that solicitation and evaluation of
proposals under the Program encourage interdisciplinary research;

16 (3) expand education and training of under17 graduate and graduate students in interdisciplinary
18 nanotechnology science and engineering;

(4) accelerate the commercial application ofnanotechnology innovations in the private sector;

(5) ensure that societal and ethical concerns
will be addressed as the technology is developed by
integrating, insofar as possible, research on such
concerns with nanotechnology research and development; and

1 (6) ensure that the potential of nanotechnology 2 to produce or facilitate the production of clean, inex-3 realized pensive energy is by supporting 4 nanotechnology energy applications research and de-5 velopment. 6 (c)DEFINITIONS.—For the purposes of this 7 section-(1) the term "nanotechnology" means science 8 9 and engineering aimed at creating materials, devices, 10 and systems at the atomic and molecular level; and 11 (2) the term "advanced technology user facility" means a nanotechnology research and develop-12 13 ment facility supported, in whole or in part, by Fed-14 eral funds that is open to all United States research-

15 ers on a competitive, merit-reviewed basis.

Page 102, line 1, strike "maintain" and insert "develop and maintain".

Page 103, lines 16 through 25, amend subparagraph (C) to read as follows:

16	(C) by amending subsection (e) to read as
17	follows:
18	"(e) Authorization of Appropriations.—There
19	are authorized to be appropriated to the Secretary of En-
20	ergy to carry out the Networking and Information Tech-

1 nology Research and Development Program such sums as

2 may be necessary for fiscal years 2004 through 2007.".

Page 104, after line 24, insert the following new section:

#### 3 SEC. 170A. NITROGEN FIXATION.

4 The Secretary, acting through the Office of Science, 5 shall support a program of research, development, dem-6 onstration, and commercial application on biological nitro-7 gen fixation, including plant genomics research relevant 8 to the development of commercial crop varieties with en-9 hanced nitrogen fixation efficiency and ability.

Page 105, strike line 8, and redesignate the subsequent paragraphs accordingly.

Page 105, line 16, strike "2003" and insert "2004".

Page 108, after line 15, add the following new section and the following new subtitle, and redesignate the subsequent subtitle accordingly:

#### 10 SEC. 179. FUEL CELL TEST CENTER.

(a) STUDY.—Not later than 1 year after the date of
enactment of this Act, the Secretary shall transmit to the
Congress a report on the results of a study of the establishment of a test center for next-generation fuel cells at
an institution of higher education that has available a con-

tinuous source of hydrogen and access to the electric
 transmission grid. Such report shall include a conceptual
 design for such test center and a projection of the costs
 of establishing the test center.

5 (b) AUTHORIZATION OF APPROPRIATIONS.—There
6 are authorized to be appropriated to the Secretary for car7 rying out this section \$500,000.

### 8 Subtitle H—Hydrogen

#### 9 SEC. 181. SHORT TITLE.

10 This subtitle may be cited as the "George E. Brown,11 Jr. and Robert S. Walker Hydrogen Future Act of 2003".

#### 12 SEC. 182. MATSUNAGA ACT AMENDMENT.

The Spark M. Matsunaga Hydrogen Research, Development, and Demonstration Act of 1990 (42 U.S.C.
12401 et seq.) is amended by striking sections 102
through 109 and inserting the following:

#### 17 "SEC. 102. FINDINGS AND DEFINITIONS.

18 "(a) FINDINGS.—Congress finds that—

19 "(1) the United States is currently dependent
20 on foreign sources for a majority of its petroleum
21 supply;

"(2) the Nation's dependence on foreign petroleum is expected to increase in the decades ahead;
"(3) it is in the national interest to reduce dependence on imported petroleum by accelerating

Federal efforts to partner with the private sector in
 developing hydrogen and fuel cell technologies;

3 "(4) it is in the national interest to support in-4 dustry's efforts to develop a light duty vehicle fleet 5 that is free or near free of pollutant emissions and 6 greenhouse gas emissions, and that helps to reduce 7 the Nation's dependence on petroleum in a manner 8 that maintains the freedom of consumers to pur-9 chase the kinds of vehicles they wish to drive and 10 the freedom to refuel those vehicles safely and 11 affordably;

"(5) the development of hydrogen fuel cell vehicles and supporting infrastructure will benefit from
and accelerate the parallel advancement of fuel cells
for stationary power that will enhance the resiliency,
reliability, and environmental performance of the
Nation's electricity infrastructure;

18 "(6) fuel cell technology for consumer elec19 tronics and portable power will benefit from, and ad20 vance the development of, hydrogen fuel cell vehicles
21 and supporting infrastructure;

"(7) there is a need for deployment of bridging
technologies that can contribute to reducing petroleum demand and decreasing air emissions,
including—

1	"(A) gasoline-electric and diesel-electric hy-
2	brid drive systems;
3	"(B) advanced combustion engines (includ-
4	ing clean diesel), electric battery, and power
5	electronics; and
6	"(C) alternative fuels and other tech-
7	nologies;
8	"(8) low-cost hydrogen production, storage, and
9	delivery facilities are essential to the success of the
10	FreedomCAR program; and
11	"(9) vehicle technology development work
12	should be performed in a manner that is cognizant
13	of consumer acceptance and marketplace success.
14	"(b) DEFINITIONS.—In this Act:
15	"(1) The term 'Advisory Committee' means the
16	Hydrogen Technical and Fuel Cell Advisory Com-
17	mittee established under section 108 of this Act.
18	"(2) The term 'Department' means the Depart-
19	ment of Energy.
20	"(3) The term 'fuel cell' means a device that di-
21	rectly converts the chemical energy of a fuel and an
22	oxidant into electricity by an electrochemical process
23	taking place at separate electrodes in the device.
24	"(4) The term 'infrastructure' means the equip-
25	ment, systems, or facilities used to produce, dis-

tribute, deliver, or store hydrogen and other ad vanced clean fuels.

3 "(5) The term 'light duty vehicle' means a car
4 or truck classified by the Department of Transpor5 tation as a Class I or IIA vehicle.

6 "(6) The term 'Secretary' means the Secretary7 of Energy.

#### 8 "SEC. 103. PROGRAM.

9 "(a) IN GENERAL.—The Secretary shall conduct a 10 research, development, demonstration, and commercial ap-11 plication program designed to accelerate the use of hydro-12 gen and related technologies in stationary and transpor-13 tation applications. The goals of the program shall 14 include—

"(1) to enable a decision by automakers not
later than 2015 to offer affordable and technically
viable hydrogen fuel cell vehicles in the mass consumer market; and

"(2) to enable production and delivery to consumers of model year 2020 hydrogen fuel cell vehicles that will have—

22 "(A) a range of at least three hundred
23 miles;

24 "(B) safety and performance comparable25 to vehicle technologies in the market; and

1	"(C) when compared to light duty vehicles
2	in model year 2003—
3	"(i) a fuel economy that is two and
4	one half times the equivalent fuel economy
5	of comparable light duty vehicles in model
6	year 2003; and
7	"(ii) zero or near zero emissions of
8	pollutants; and
9	"(D) vehicle fuel system crash integrity
10	and occupant protection.
11	"(b) ACTIVITIES.—The program authorized under
12	this section shall address—
13	"(1) production of hydrogen from diverse en-
14	ergy sources, including—
15	"(A) fossil fuels, in conjunction with car-
16	bon capture and sequestration;
17	"(B) hydrogen-carrier fuels (including eth-
18	anol and methanol);
19	"(C) renewable energy resources; and
20	"(D) nuclear energy;
21	"(2) delivery of hydrogen or hydrogen-carrier
22	fuels, including—
23	"(A) transmission by pipeline and other
24	distribution methods; and

"(B) safe, convenient, and economic refueling of vehicles either at central refueling stations or through distributed on-site generation;
"(3) storage of hydrogen or hydrogen-carrier
fuels, including development of materials for safe
and economic storage in gaseous, liquid, or solid
form at refueling facilities and onboard vehicles;

8 "(4) development of safe, durable, affordable, 9 and efficient fuel cells, including research and devel-10 opment on fuel-flexible fuel cell power systems, im-11 proved manufacturing processes, high-temperature 12 membranes, cost-effective fuel processing for natural 13 gas, fuel cell stack and system reliability, low tem-14 perature operation, and cold start capability; and

15 "(5) development, in conjunction with the Na-16 tional Institute of Standards and Technology, of 17 necessary codes and standards (including inter-18 national codes and standards) and safety practices 19 for the production, distribution, storage, and use of 20 hydrogen, hydrogen-carrier fuels and related prod-21 ucts.

"(c) DEMONSTRATION.—In carrying out the demonstration program under this section, the Secretary shall
fund a limited number of projects and shall, to the extent
practicable—

1	"(1) select only projects that—
2	"(A) involve using hydrogen and related
3	products at facilities or installations that would
4	exist without the demonstration program, such
5	as existing office buildings, military bases, vehi-
6	cle fleet centers, transit bus authorities, or
7	parks; and
8	"(B) depend on reliable power from hydro-
9	gen to carry out essential activities; and
10	"(2) favor projects that—
11	"(A) lead to the replication of hydrogen
12	technologies and draw such technologies into
13	the marketplace;
14	"(B) integrate in a single project both mo-
15	bile and stationary applications of hydrogen fuel
16	cells;
17	"(C) address the interdependency of de-
18	mand for hydrogen fuel cell applications and
19	hydrogen fuel infrastructure; or
20	"(D) raise awareness of hydrogen tech-
21	nology among the public.
22	"(d) Merit Review.—The Secretary shall carry out
23	the program under this section using a competitive, merit-
24	review process and consistent with the generally applicable

Federal laws and regulations governing awards of finan cial assistance, contracts, or other agreements.
 "(e) COST SHARING.—(1) For projects carried out
 through grants, cooperative agreements, or contracts
 under this section, the Secretary shall require a commit ment from non-Federal sources of at least—

7 "(A) 20 percent of the cost of a research and8 development project; and

9 "(B) 50 percent of the cost of a demonstration10 project.

11 "(2) The Secretary may reduce the cost-sharing re12 quirement under paragraph (1)—

13 "(A) if the Secretary determines that the
14 project involves research of a basic or fundamental
15 nature;

16 "(B) if the Secretary determines that a dem17 onstration or commercial application project involves
18 unusual technological risks; or

19 "(C) for technical analyses or other activities
20 that the Secretary does not expect to result in a
21 marketable product.

"(3) The Secretary may consider the size of the non-Federal share in selecting projects.

#### 1 "SEC. 104. FREEDOM CAR

2 "(a) IN GENERAL.—In coordination with the pro3 gram under section 103, the Secretary shall carry out a
4 research, development, demonstration, and commercial ap5 plication program on advanced vehicle technologies, to be
6 known as the FreedomCAR program.

7 "(b) ACTIVITIES.—The FreedomCAR program shall8 address—

9 "(1) engine and emission control systems;

10 "(2) energy storage, electric propulsion, and hy-11 brid systems;

12 "(3) automotive materials;

13 "(4) clean fuels in addition to hydrogen; and

14 "(5) other advanced vehicle technologies.

15 "(c) DEMONSTRATION.—Demonstrations involving
16 hydrogen shall be conducted as part of the program under
17 section 103.

18 "(d) MERIT REVIEW AND COST SHARING.—The Sec19 retary shall carry out the FreedomCAR program in com20 pliance with sections 103(d) and (e).

#### 21 "SEC. 105. PLAN.

"Not later than six months after the date of enactment of the George E. Brown, Jr. and Robert S. Walker
Hydrogen Future Act of 2003, the Secretary shall transmit to the Congress a coordinated plan for the programs
described in sections 103 and 104 and any other programs

of the Department that are directly related to fuel cells
 or hydrogen. The plan shall be consistent with the Na tional Hydrogen Energy Roadmap published by the De partment in October of 2002 and shall describe, at a
 minimum—

6 "(1) the agenda for the programs for the next 7 five years, including what research, development, 8 demonstration, and commercial application will be 9 conducted to carry out each activity enumerated in 10 sections 103(b) and 104(b);

"(2) the role national laboratories, institutions
of higher education, small businesses, and other private sector firms are expected to play in the programs;

15 "(3) the technical milestones that will be used16 to evaluate the programs for the next five years;

"(4) the most significant technical hurdles that
stand in the way of achieving the goals described in
section 103(a), and how the programs will address
those hurdles; and

"(5) the policy assumptions that are driving the
research agenda, including any assumptions that
would affect the sources of hydrogen or the marketability of hydrogen-related products.

April 1, 2003 F:\V8\040103\040103.109

## 1 "SEC. 106. EDUCATION, OUTREACH, AND TECHNOLOGY2TRANSFER.

3 "(a) IN GENERAL.—The Secretary may carry out 4 programs and activities for interagency, intergovern-5 mental, and international education, information ex-6 change, and cooperation related to hydrogen and hydro-7 gen-related products.

8 "(b) TECHNOLOGY TRANSFER.—(1) The Secretary 9 may conduct a program to transfer technology to the private sector under this Act. The purpose of the technology 10 transfer program is to foster the exchange of generic, non-11 proprietary information and technology, developed under 12 13 this Act, among industry, academia, and the Federal Government, to help the United States economy attain the 14 economic benefits of this information and technology, 15 16 among other purposes.

17 "(2) The Secretary shall direct the program author-18 ized by this subsection with the advice and assistance of19 the Advisory Committee.

#### 20 "SEC. 107. INTERAGENCY TASK FORCE.

"(a) ESTABLISHMENT.—Not later than 120 days
after the date of enactment of the George E. Brown, Jr.
and Robert S. Walker Hydrogen Future Act of 2003, the
President shall establish an interagency task force, chaired
by the Director of the Office of Science and Technology

40

Policy or his designee, with representatives from each of

2 the following: "(1) The Department of Energy. 3 "(2) The Department of Transportation. 4 "(3) The Department of State. 5 "(4) The Department of Defense. 6 "(5) The Department of Commerce (including 7 8 the National Institute of Standards and Tech-9 nology). 10 "(6) The Environmental Protection Agency. 11 "(7) The National Aeronautics and Space Ad-12 ministration. 13 "(8) Other Federal agencies as the Director de-14 termines appropriate. "(b) DUTIES.— 15 "(1) IMPLEMENTATION.—The interagency task 16 17 force shall work toward development of— "(A) a safe, economical, and environ-18 19 mentally sound hydrogen infrastructure; "(B) uniform hydrogen codes, standards, 20 21 and safety protocols; "(C) fuel cells in government applications, 22 23 including portable, stationary, and transpor-24 tation applications; and

1	"(D) vehicle hydrogen fuel system integrity
2	safety performance.
3	"(2) ACTIVITIES.—The interagency task force
4	may organize workshops and conferences, may issue
5	publications, and may create databases to carry out
6	its duties. The interagency task force shall—
7	"(A) foster the exchange of generic, non-
8	proprietary information and technology among
9	industry, academia, and government;
10	"(B) develop and maintain an inventory
11	and assessment of hydrogen, fuel cells, and
12	other advanced technologies, including the com-
13	mercial capability of each technology for the
14	economic and environmentally safe production,
15	distribution, delivery, storage, and use of hydro-
16	gen;
17	"(C) integrate technical and other informa-
18	tion made available as a result of the programs
19	and activities under this Act;
20	"(D) promote the marketplace introduction
21	of infrastructure for hydrogen-powered fuel cell
22	vehicles; and
23	"(E) conduct an education program to pro-
24	vide hydrogen and fuel cell information to po-

tential end-users in coordination with the pro gram under section 106.

3 "(c) AGENCY COOPERATION.—The heads of all agen-4 cies, including those whose agencies are not represented 5 on the interagency task force, shall cooperate with and 6 furnish information to the interagency task force and the 7 Department.

#### 8 "SEC. 108. ADVISORY COMMITTEE.

9 "(a) ESTABLISHMENT.—The Hydrogen Technical 10 and Fuel Cell Advisory Committee shall be established to 11 advise the Secretary on the programs and activities under 12 this Act.

13 "(b) Membership.—

14 "(1) MEMBERS.—The Secretary shall appoint 15 not fewer than 12 nor more than 25 members. The 16 Secretary shall appoint members to represent domes-17 tic industry, academia, professional societies, govern-18 ment agencies, and financial, environmental, and 19 other appropriate organizations based on the Sec-20 retary's assessment of the technical and other quali-21 fications of committee members and the needs of the 22 Advisory Committee.

23 "(2) TERMS.—The term of a member of the
24 Advisory Committee shall be not more than three
25 years. The Secretary may appoint members of the

April 1, 2003 F:\V8\040103\040103.109

1	Advisory Committee in a manner that allows the
2	terms of the members serving at any time to expire
3	at spaced intervals so as to ensure continuity in the
4	functioning of the Advisory Committee. A member of
5	the Advisory Committee whose term is expiring may
6	be reappointed.
7	"(3) CHAIRPERSON.—The Chair of the Advi-
8	sory Committee shall be a member of the Advisory
9	Committee, elected by the members from among
10	their number.
11	"(c) REVIEW.—(1) The Advisory Committee shall re-
12	view and make recommendations to the Secretary in a bi-
13	ennial report on—
14	"(A) the implementation of programs and ac-
15	tivities under this Act; and
16	"(B) the safety, economical, environmental, and
17	other consequences of technologies for the produc-
18	tion, distribution, delivery, storage, or use of hydro-
19	gen and fuel cells.
20	"(2) The Secretary shall transmit the report under
21	this subsection to the Congress along with a description
22	of how the Secretary has implemented or plans to imple-
23	ment the recommendations, or an explanation of the rea-
24	sons that a recommendation will not be implemented. The

April 1, 2003 F:\V8\040103\040103.1O9

report shall be transmitted along with the President's
 budget proposal.

3 "(d) ADVISORY COMMITTEE SUPPORT.—The Sec4 retary shall provide resources necessary in the judgment
5 of the Secretary for the Advisory Committee to carry out
6 its responsibilities under this Act.

#### 7 "SEC. 109. EXTERNAL REVIEW.

8 "(a) PLAN.—The Secretary shall enter into an arrangement with a competitively selected nongovernmental 9 10 entity, such as the National Academy of Sciences, to review the plan prepared under section 105. The Secretary 11 shall transmit the review to the Congress along with a plan 12 to implement the review's recommendations or an expla-13 nation of the reasons that a recommendation will not be 14 15 implemented.

16 "(b) BIENNIAL REVIEW.—The Secretary shall enter 17 into an arrangement with a competitively selected nongovernmental entity, such as the National Academy of 18 Sciences, under which the entity will review the program 19 20 under sections 103 and 104 every other year, beginning 21 two years after the date of enactment of the George E. 22 Brown, Jr. and Robert S. Walker Hydrogen Future Act 23 of 2003. The entity shall review the research priorities, 24 technical milestones, and plans for technology transfer and 25 evaluate the progress toward achieving them. The Sec-

retary shall transmit each review to the Congress along
 with a plan to implement the review's recommendations
 or an explanation for the reasons that a recommendation
 will not be implemented.

5 "SEC. 110. MISCELLANEOUS PROVISIONS.

6 "(a) DUPLICATION.—The Secretary shall carry out
7 the activities of this Act in a manner that avoids unneces8 sary duplication or displacement of, or competition with
9 private sector activities.

"(b) OTHER GOVERNMENTS.—In carrying out this
Act, the Secretary may enter into cost-sharing agreements
with Federal, State, or local governments to demonstrate
applications using hydrogen and fuel cells.

14 "(c) REPRESENTATION.—The Department may rep-15 resent the United States interests with respect to activities 16 and programs under this Act, in coordination with the De-17 partment of Transportation, the National Institute of 18 Standards and Technology, and other relevant Federal 19 agencies, before governments and nongovernmental orga-20 nizations including—

- 21 "(1) other Federal, State, regional, and local
  22 governments and their representatives;
- 23 "(2) industry and its representatives, including
  24 members of the energy and transportation indus25 tries; and

"(3) in consultation with the Department of
 State, foreign governments and their representatives
 including international organizations.

4 "(d) REGULATORY AUTHORITY.—Nothing in this Act
5 shall be construed to alter the regulatory authority of the
6 Department.

#### 7 "SEC. 111. AUTHORIZATION OF APPROPRIATIONS.

8 "There are authorized to be appropriated to carry out
9 this Act, in addition to any amounts made available for
10 these purposes under other Acts—

- 11 "(1) \$273,500,000 for fiscal year 2004;
- 12 "(2) \$325,000,000 for fiscal year 2005;
- 13 "(3) \$375,000,000 for fiscal year 2006;
- 14 "(4) \$400,000,000 for fiscal year 2007; and
- 15 "(5) \$425,000,000 for fiscal year 2008.".

#### 16 SEC. 183. REPEAL OF HYDROGEN FUTURE ACT OF 1996.

17 The Hydrogen Future Act of 1996 is repealed.

Page 110, strike lines 17 through 21, and insert the following:

- 18 (b) Office of Science Advisory Committees.—
- 19 (1) UTILIZATION OF EXISTING COMMITTEES.—
  20 The Secretary shall continue to use the scientific
  21 program advisory committees chartered under the
  22 Federal Advisory Committee Act by the Office of

1	Science to oversee research and development pro-
2	grams under that Office.
3	(2) Science advisory committee.—
4	(A) ESTABLISHMENT.—There shall be in
5	the Office of Science a Science Advisory Com-
6	mittee that includes the chairs of each of the
7	advisory committees described in paragraph (1).
8	(B) RESPONSIBILITIES.—The Science Ad-
9	visory Committee shall—
10	(i) serve as the science advisor to the
11	Assistant Secretary for Science created
12	under section 209 of the Department of
13	Energy Organization Act, as added by sec-
14	tion 201 of this Act;
15	(ii) advise the Assistant Secretary
16	with respect to the well-being and manage-
17	ment of the National Laboratories and sin-
18	gle-purpose research facilities;
19	(iii) advise the Assistant Secretary
20	with respect to education and workforce
21	training activities required for effective
22	short-term and long-term basic and applied
23	research activities of the Office of Science;
24	and

1	(iv) advise the Assistant Secretary
2	with respect to the well being of the uni-
3	versity research programs supported by the
4	Office of Science.

Page 111, lines 5 and 6, strike "section 102" and insert "section 3".

Page 111, line 12, strike "section 102" and insert "section 3".

Page 113, line 5, through page 120, line 4, strike section 186.

Page 123, line 5, strike "a study" and insert "studies".

Page 123, lines 6 through 8, amend subparagraph (A) to read as follows:

5 (A) the obstacles to accelerating the com6 mercial application of energy technology; and

Page 123, line 15, strike "study" and insert "studies".

Page 126, after line 2, insert the following new section:

#### 1 SEC. 194. UNIVERSITY COLLABORATION.

2 Not later than 2 years after the date of enactment 3 of this Act, the Secretary shall transmit to the Congress a report that examines the feasibility of promoting collabo-4 5 rations between large institutions of higher education and small institutions of higher education through grants, con-6 7 tracts, and cooperative agreements made by the Secretary 8 for energy projects. The Secretary shall also consider pro-9 viding incentives for the inclusion of small institutions of 10 higher education, including minority-serving institutions, in energy research grants, contracts, and cooperative 11 12 agreements.

Page 128, after line 13, insert the following new section:

## 13 SEC. 202. REPORT ON EQUAL EMPLOYMENT OPPORTUNITY 14 PRACTICES.

The Secretary shall transmit to the Congress a biennial report on the equal employment opportunity practices
at the nonmilitary energy laboratories. Such report shall
include—

(1) a thorough review of each nonmilitary energy laboratory contractor's equal employment opportunity policies;

(2) a statistical report on complaints and theirdisposition in the laboratories;

1	(3) the role equal employment opportunity prac-
2	tices play in selecting the contractor for each labora-
3	tory, and in establishing the fee that is paid to the
4	contractor for each laboratory;
5	(4) a summary of disciplinary actions by either
6	the Department or the relevant contractors for each
7	laboratory; and
8	(5) a summary of efforts by the Department
9	and the relevant contractors for each laboratory to
10	attract women and minorities to the laboratories.
	Page 135, line 10, strike "303" and insert "304".

Page 135, after line 21, insert the following new section and redesignate the subsequent section accordingly:

#### 11 SEC. 303. DIESEL RETROFIT PROGRAM.

(a) ESTABLISHMENT.—The Administrator of the Environmental Protection Agency and the Secretary shall establish a pilot program for awarding grants on a competitive basis to eligible recipients for the demonstration and
commercial application of retrofit technologies for diesel
school buses.

(b) ELIGIBLE RECIPIENTS.—A grant shall be award-ed under this section only—

1 (1) to a local or State governmental entity re-2 sponsible for providing school bus service to one or 3 more public school systems; or 4 (2) to a contracting entity that provides school 5 bus service to one or more public school systems, if 6 the grant application is submitted jointly with the 7 school system or systems which the buses will serve. 8 (c) CONDITIONS OF GRANT.—A grant provided under 9 this section may be used only to demonstrate the use of 10 retrofit emissions-control technology on diesel buses 11 that----12 (1) operate on ultra-low sulfur diesel fuel; and 13 (2) were manufactured in model year 1991 or 14 later. 15 (d) VERIFICATION.—Not later than 3 months after the date of enactment of this Act, the Administrator shall 16 17 publish in the Federal Register procedures to verify— 18 (1) the retrofit emissions-control technology to 19 be demonstrated; and 20 (2) that buses on which retrofit emissions-con-21 trol technology are to be demonstrated will operate 22 on diesel fuel containing not more than 15 parts per 23 million of sulfur. Page 135, line 23, insert "(a) SCHOOL BUS

GRANTS.—" before "There are".

Page 136, strike line 1, and redesignate the subsequent paragraphs accordingly.

Page 136, line 2, strike "\$70,000,000" and insert "\$90,000,000".

Page 136, line 3, strike "\$80,000,000" and insert "\$100,000,000".

Page 136, line 4, strike "\$90,000,000" and insert "\$110,000,000".

Page 136, after line 4, insert the following new subsection:

(b) RETROFIT GRANTS.—There are authorized to be
 appropriated to the Administrator of the Environmental
 Protection Agency and the Secretary such sums as may
 be necessary for carrying out section 303.

Page 136, lines 20 through 25, amend paragraph (2) to read as follows:

5 (2) FUEL CELL VEHICLE.—The term "fuel cell 6 vehicle" means a vehicle propelled by an electric 7 motor powered by a fuel cell system that converts 8 chemical energy into electricity by combining oxygen 9 (from air) with hydrogen fuel that is stored on the 10 vehicle or is produced onboard by reformation of a 11 hydrocarbon fuel. Such fuel cell system may or may

not include the use of auxiliary energy storage sys tems to enhance vehicle performance.

Page 137, lines 1 through 5, amend paragraph (3) to read as follows:

3 (3) HYBRID VEHICLE.—The term "hybrid vehi4 cle" means a medium or heavy duty vehicle that is
5 more efficient than its non-hybrid counterpart and
6 that draws propulsion energy from both an internal
7 combustion engine using any combustible fuel and
8 an onboard energy storage device.

Page 137, line 8, strike "that qualifies as both" and insert "capable of traveling at speeds of 25 miles per hour that is".

Page 137, line 11, strike "and".

Page 137, line 14, strike the period and insert "; and".

Page 137, after line 14, insert the following new subparagraph:

9 (C) otherwise lawful to use on local streets.

Page 137, line 20, strike "2004" and insert "2003".

Page 140, lines 2 and 3, strike "alternative fueled vehicle, fuel cell vehicle, or hybrid vehicle" and insert "alternative fueled vehicle or fuel cell vehicle".

Page 144, line 14, strike "this title" and insert "the pilot program".

Page 145, line 11, redesignate section 404 as section 405.

Page 145, after line 10, insert the following new section:

#### 1 SEC. 404. FUEL CELL TRANSIT BUS DEMONSTRATION.

2 The Secretary shall establish a transit bus dem-3 onstration program to make competitive, merit-based 4 awards for five-year projects to demonstrate not more 5 than 12 fuel cell transit buses (and necessary infrastructure) in three geographically dispersed localities. In select-6 7 ing projects under this section, the Secretary shall give 8 preference to projects that are most likely to mitigate con-9 gestion and improve air quality.

Page 145, line 25, strike "2003" and insert "2005".

Page 146, line 23, strike "2003" and insert "2005".

Page 147, line 6, strike "operation or have been demonstrated" and insert "commercial service or have been demonstrated on a scale that the Secretary deter-

mines is sufficient to demonstrate that commercial service is viable".

Page 148, line 8, strike "57" and insert "50".

Page 148, after line 9, insert the following new subparagraph:

1	(C) Beginning in fiscal year 2009, the Sec-
2	retary may use funds under this paragraph for a
3	project that does not meet the criteria described in
4	subparagraph (A), but only if—
5	(i) the Secretary finds that the project is
6	likely to result in greater emissions reductions
7	than would a project funded pursuant to sub-
8	paragraph (A);
9	(ii) the Secretary finds that the project
10	would permit (but not necessarily include) the
11	activities described in paragraph (5); and
12	(iii) the Secretary notifies the Congress of
13	the project at the time when it is approved.

Page 149, line 3, strike "42" and insert "40".