

110TH CONGRESS  
2D SESSION

# S. 3618

To establish a research, development, demonstration, and commercial application program to promote research of appropriate technologies for heavy duty plug-in hybrid vehicles, and for other purposes.

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## IN THE SENATE OF THE UNITED STATES

SEPTEMBER 26 (legislative day, SEPTEMBER 17), 2008

Ms. COLLINS (for herself and Mrs. FEINSTEIN) introduced the following bill; which was read twice and referred to the Committee on Energy and Natural Resources

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## A BILL

To establish a research, development, demonstration, and commercial application program to promote research of appropriate technologies for heavy duty plug-in hybrid vehicles, and for other purposes.

1       *Be it enacted by the Senate and House of Representa-*  
2       *tives of the United States of America in Congress assembled,*

3       **SECTION 1. SHORT TITLE.**

4       This Act may be cited as the “Heavy Duty Hybrid  
5       Vehicle Research, Development, and Demonstration Act of  
6       2008”.

1 **SEC. 2. ADVANCED HEAVY DUTY HYBRID VEHICLE TECH-**  
2 **NOLOGY RESEARCH, DEVELOPMENT, DEM-**  
3 **ONSTRATION, AND COMMERCIAL APPLICA-**  
4 **TION PROGRAM.**

5 (a) DEFINITIONS.—In this section:

6 (1) ADVANCED HEAVY DUTY HYBRID VEHI-  
7 CLE.—The term “advanced heavy duty hybrid vehi-  
8 cle” means a vehicle with a gross weight of more  
9 than 14,000 pounds but less than 33,000 pounds  
10 that is fueled, in part, by a rechargeable energy stor-  
11 age system.

12 (2) GREENHOUSE GAS.—The term “greenhouse  
13 gas” means—

- 14 (A) carbon dioxide;
- 15 (B) methane;
- 16 (C) nitrous oxide;
- 17 (D) hydrofluorocarbons;
- 18 (E) perfluorocarbons; or
- 19 (F) sulfur hexafluoride.

20 (3) PLUG-IN HYBRID VEHICLE.—The term  
21 “plug-in hybrid” means a vehicle fueled, in part, by  
22 electrical power that can be recharged by connecting  
23 the vehicle to an electric power source.

24 (4) PROGRAM.—The term “program” means  
25 the competitive research, development, demonstra-

1       tion, and commercial application program estab-  
2       lished under this section.

3               (5) RETROFIT.—The term “retrofit” means the  
4       process of creating an advanced heavy duty hybrid  
5       vehicle by converting an existing, fuel-powered vehi-  
6       cle.

7               (6) SECRETARY.—The term “Secretary” means  
8       the Secretary of Energy.

9               (b) ESTABLISHMENT.—The Secretary shall establish  
10      a competitive research, development, demonstration, and  
11      commercial application program under which the Sec-  
12      retary shall provide grants to eligible applicants to carry  
13      out projects to advance research and development, and to  
14      demonstrate technologies, for advanced heavy duty hybrid  
15      vehicles.

16              (c) APPLICATIONS.—

17                      (1) IN GENERAL.—The Secretary shall establish  
18              requirements for applying for grants under the pro-  
19              gram.

20                      (2) SELECTION CRITERIA.—

21                              (A) IN GENERAL.—The Secretary shall es-  
22                      tablish selection criteria for awarding grants  
23                      under the program.

24                              (B) FACTORS.—In evaluating applications,  
25                      the Secretary shall—

1 (i) consider the ability of applicants to  
2 successfully complete both phases described  
3 in subsection (d); and

4 (ii) give priority to applicants who, as  
5 determined by the Secretary, are best able  
6 to—

7 (I) fill existing research gaps and  
8 achieve the greatest advances beyond  
9 the state of current technology; and

10 (II) achieve the greatest reduc-  
11 tion in fuel consumption and emis-  
12 sions.

13 (3) PARTNERS.—An applicant for a grant  
14 under this section may carry out a project in part-  
15 nership with other entities.

16 (4) SCHEDULE.—

17 (A) APPLICATION REQUEST.—

18 (i) IN GENERAL.—Not later than 180  
19 days after the date of the enactment of  
20 this Act, the Secretary shall publish in the  
21 Federal Register, and elsewhere as appro-  
22 priate, a request for applications to under-  
23 take projects under the program.

1 (ii) APPLICATION DEADLINE.—The  
2 applications shall be due not later than 90  
3 days after the date of the publication.

4 (B) APPLICATION SELECTION.—Not later  
5 than 90 days after the date on which applica-  
6 tions for grants under the program are due, the  
7 Secretary shall select, through a competitive  
8 process, all applicants to be awarded a grant  
9 under the program.

10 (5) NUMBER OF GRANTS.—

11 (A) IN GENERAL.—The Secretary shall de-  
12 termine the number of grants to be awarded  
13 under the program based on the technical mer-  
14 its of the applications received.

15 (B) MINIMUM AND MAXIMUM NUMBER.—  
16 The number of grants awarded under the pro-  
17 gram shall be not less than 3 and not more  
18 than 7 grants.

19 (C) PLUG-IN HYBRID VEHICLE TECH-  
20 NOLOGY.—At least half of the grants awarded  
21 under this section shall be used to promote  
22 plug-in hybrid vehicle technology.

23 (6) AWARD AMOUNTS.—The Secretary shall  
24 award not more than \$3,000,000 to a recipient per  
25 year for each of the 3 years of the project.

1 (d) PROGRAM REQUIREMENTS; 2 PHASES.—

2 (1) IN GENERAL.—As a condition of the receipt  
3 of a grant under this section, each grant recipient  
4 shall be required to complete 2 phases in accordance  
5 with this subsection.

6 (2) PHASE 1.—

7 (A) IN GENERAL.—In phase 1, the recipi-  
8 ent shall conduct research and demonstrate ad-  
9 vanced hybrid technology by producing or retro-  
10 fitting 1 or more advanced heavy duty hybrid  
11 vehicles.

12 (B) REPORT.—Not later than 60 days  
13 after the completion of phase 1, the recipient  
14 shall submit to the Secretary a report con-  
15 taining data and analysis of—

16 (i) the performance of each vehicle in  
17 carrying out the testing procedures devel-  
18 oped by the Secretary under subparagraph  
19 (E);

20 (ii) the performance during the test-  
21 ing of the components of each vehicle, in-  
22 cluding the battery, energy management  
23 system, charging system, and power con-  
24 trols;

1 (iii) the projected cost of each vehicle,  
2 including acquisition, operating, and main-  
3 tenance costs; and

4 (iv) the emission levels of each vehicle,  
5 including greenhouse gas levels.

6 (C) TERMINATION.—The Secretary may  
7 terminate the grant program with respect to the  
8 project of a recipient at the conclusion of phase  
9 1 if the Secretary determines that the recipient  
10 cannot successfully complete the requirements  
11 of phase 2.

12 (D) TIMING.—Phase 1 shall—

13 (i) begin on the date of receipt of a  
14 grant under the program; and

15 (ii) have a duration of 1 year.

16 (E) TESTING PROCEDURES.—

17 (i) IN GENERAL.—The Secretary shall  
18 develop standard testing procedures to be  
19 used by recipients in testing each vehicle.

20 (ii) VEHICLE PERFORMANCE.—The  
21 procedures shall include testing the per-  
22 formance of a vehicle under typical oper-  
23 ating conditions.

24 (3) PHASE 2.—

1 (A) IN GENERAL.—In phase 2, the recipi-  
2 ent shall demonstrate advanced manufacturing  
3 processes and technologies by producing or ret-  
4 rofitting 50 advanced heavy duty hybrid vehi-  
5 cles.

6 (B) REPORT.—Not later than 60 days  
7 after the completion of phase 2, the recipient  
8 shall submit to the Secretary a report con-  
9 taining an analysis of —

10 (i) the technological challenges en-  
11 countered by the recipient in the develop-  
12 ment of the vehicles;

13 (ii) the technological challenges in-  
14 volved in mass producing the vehicles; and

15 (iii) the manufacturing cost of each  
16 vehicle, the estimated sale price of each ve-  
17 hicle, and the cost of a comparable non-hy-  
18 brid vehicle.

19 (C) TIMING.—Phase 2 shall—

20 (i) begins on the conclusion of phase  
21 1; and

22 (ii) have a duration of 2 years.

23 (e) RESEARCH ON VEHICLE USAGE AND ALTER-  
24 NATIVE DRIVE TRAINS.—

1           (1) IN GENERAL.—The Secretary shall conduct  
2           research into alternative power train designs for use  
3           in advanced heavy duty hybrid vehicles.

4           (2) COMPARISON.—The research shall compare  
5           the estimated cost (including operating and mainte-  
6           nance costs, the cost of emission reductions, and fuel  
7           savings) of each design with similar nonhybrid power  
8           train designs under the conditions in which those ve-  
9           hicles are typically used, including (for each vehicle  
10          type)—

11                   (A) the number of miles driven;

12                   (B) time spent with the engine at idle;

13                   (C) horsepower requirements;

14                   (D) the length of time the maximum or  
15           near maximum power output of the vehicle is  
16           needed; and

17                   (E) any other factors that the Secretary  
18           considers appropriate.

19          (f) REPORT TO CONGRESS.—Not later than 60 days  
20          after the date the Secretary receives the reports from  
21          grant recipients under subsection (d)(3)(B), the Secretary  
22          shall submit to Congress a report containing a description  
23          of—

24                   (1) the grant recipients and the projects fund-  
25           ed;

1           (2) all applicants who submitted applications  
2           for the program;

3           (3) all data contained in reports submitted by  
4           grant recipients under subsection (d);

5           (4) the vehicles produced or retrofitted by re-  
6           cipients in phases 1 and 2 of the program, including  
7           an analysis of the fuel efficiency of the vehicles; and

8           (5) the results of the research carried out under  
9           subsections (e) and (i).

10          (g) COORDINATION AND NONDUPLICATION.—To the  
11          maximum extent practicable, the Secretary shall coordi-  
12          nate, and not duplicate, activities under this section with  
13          other programs and laboratories of the Department of En-  
14          ergy and other Federal research programs.

15          (h) COST SHARING.—Section 988 of the Energy Pol-  
16          icy Act of 2005 (42 U.S.C. 16352) shall apply to the pro-  
17          gram.

18          (i) ELECTRICAL GRID RESEARCH PILOT PRO-  
19          GRAM.—The Secretary, acting through the National Lab-  
20          oratories and Technology Centers of the Department of  
21          Energy, shall establish a pilot program to research and  
22          test the effects on the domestic electric power grid of the  
23          widespread use of plug-in hybrid vehicles, including plug-  
24          in hybrid vehicles that are advanced heavy duty hybrid ve-  
25          hicles.

1 (j) AUTHORIZATION OF APPROPRIATIONS.—

2 (1) IN GENERAL.—There are authorized to be  
3 appropriated to the Secretary to carry out this sec-  
4 tion \$16,000,000 for each of fiscal years 2009  
5 through 2011.

6 (2) LIMITATIONS.—Of the funds authorized  
7 under paragraph (1), not more than \$1,000,000 of  
8 the amount made available for a fiscal year may be  
9 used—

10 (A) to carry out the research required  
11 under subsection (e);

12 (B) to carry out the pilot program required  
13 under subsection (i); and

14 (C) to administer the program.

15 **SEC. 3. EXPANDING RESEARCH IN HYBRID TECHNOLOGY**  
16 **FOR LARGE VEHICLES.**

17 Subsection (g)(1) of the United States Energy Stor-  
18 age Competitiveness Act of 2007 (42 U.S.C. 17231(g)(1))  
19 is amended by inserting “vehicles with a gross weight over  
20 16,000 pounds,” before “stationary applications,”.

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