

109TH CONGRESS  
1ST SESSION

# S. 373

To amend the Farm Security and Rural Investment Act of 2002 to provide for a program to develop and demonstrate the cost-effective operation of a fleet of renewable hydrogen passenger vehicles.

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## IN THE SENATE OF THE UNITED STATES

FEBRUARY 14, 2005

Mr. HARKIN 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 amend the Farm Security and Rural Investment Act of 2002 to provide for a program to develop and demonstrate the cost-effective operation of a fleet of renewable hydrogen passenger vehicles.

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 “Renewable Hydrogen  
5       Passenger Vehicle Act of 2005”.

6       **SEC. 2. RENEWABLE HYDROGEN TRANSPORTATION DEM-**  
7       **ONSTRATION PROGRAM.**

8       (a) FINDINGS.—Congress finds that—

1           (1) reductions in local air pollution, greenhouse  
2 gas emissions, and oil imports resulting from the in-  
3 troduction of vehicles with gasoline-powered internal  
4 combustion hybrid electric engines will be only tem-  
5 porary, as improved fuel economy of the hybrid vehi-  
6 cles is offset by increases in vehicle miles traveled;

7           (2) direct substitution of farm-based renewable  
8 fuels for gasoline in gasoline-powered internal com-  
9 bustion hybrid electric engines will result in further  
10 reductions in local air pollution, greenhouse gas  
11 emissions, and oil imports;

12           (3) for permanent reductions in criteria pollut-  
13 ants, greenhouse gas emissions, and oil imports,  
14 Congress should establish as a national goal the de-  
15 velopment of renewable hydrogen as a clean effective  
16 energy carrier;

17           (4) the development of vehicles powered by hy-  
18 drogen derived from domestic renewable resources  
19 such as ethanol, energy crops, agricultural waste,  
20 landfill gas, municipal solid waste, wind power, and  
21 solar electricity, will—

22           (A) substantially and permanently reduce  
23 local air pollution and greenhouse gas emis-  
24 sions;

1 (B) improve the energy security of the  
2 United States; and

3 (C) create domestic jobs;

4 (5) notwithstanding paragraph (4), as of the  
5 date of enactment of this Act, the fuel cell tech-  
6 nology required to make the most efficient use of re-  
7 newable hydrogen is too costly and has not achieved  
8 the reliability necessary for consumer acceptance in  
9 the near term;

10 (6) in the near term (before affordable and reli-  
11 able fuel cell vehicles are developed), hydrogen-pow-  
12 ered internal combustion engine hybrid electric vehi-  
13 cles have been developed that can achieve more than  
14 90 percent of the environmental benefits and 100  
15 percent of the oil import reduction benefits of fuel  
16 cell vehicles;

17 (7) in addition to robust research and develop-  
18 ment for fuel cell vehicles, a program to develop and  
19 demonstrate renewable hydrogen production and dis-  
20 tribution technology is justified;

21 (8) reforming ethanol at a vehicle fueling sta-  
22 tion may be the least costly method of producing re-  
23 newable hydrogen;

24 (9) a low cost renewable hydrogen vehicle dem-  
25 onstration program that will yield valuable informa-

1       tion regarding an interim transition strategy of  
2       using hydrogen-powered internal combustion engine  
3       hybrid electric vehicles to pave the way for fuel cell  
4       vehicles once fuel cell vehicles become affordable and  
5       reliable can be implemented in 1 year; and

6               (10) the introduction of commercial hydrogen  
7       internal combustion engine hybrid electric vehicles  
8       can provide the economic incentives to help stimulate  
9       development of hydrogen fueling systems at existing  
10      gasoline fueling stations to convert ethanol to hydro-  
11      gen onsite, thereby significantly accelerating the  
12      adoption of super-clean renewable hydrogen as an al-  
13      ternative to gasoline made from imported crude oil.

14      (b) PROGRAM.—Section 9007 of the Farm Security  
15      and Rural Investment Act of 2002 (7 U.S.C. 8107) is  
16      amended by adding at the end the following:

17               “(c) DEMONSTRATION PROGRAM.—

18                       “(1) IN GENERAL.—The Secretary of Energy,  
19       in coordination with the Secretary, shall conduct a  
20       3-year program to develop and demonstrate the cost-  
21       effective operation of a fleet of at least 10 direct hy-  
22       drogen passenger vehicles based on existing commer-  
23       cial technology under which the hydrogen is derived  
24       from ethanol or other domestic low-cost transport-  
25       able renewable feedstocks.

1           “(2) GOALS.—The goals of the program shall  
2 include—

3           “(A) demonstrating the cost-effective con-  
4 version of ethanol or other low-cost transport-  
5 able renewable feedstocks to pure hydrogen  
6 suitable for eventual use in proton exchange  
7 membrane fuel cell vehicles at 1 or more local  
8 fueling stations, including hydrogen compres-  
9 sion and storage necessary to fill vehicle tanks  
10 to their operational pressure, using existing  
11 commercial reforming technology or modest  
12 modifications of existing technology to reform  
13 ethanol or other low-cost transportable renew-  
14 able feedstocks into hydrogen;

15           “(B) converting 10 or more commercially  
16 available internal combustion engine hybrid  
17 electric passenger vehicles to operate on hydro-  
18 gen;

19           “(C) installing and operating an ethanol  
20 reformer or reformer of another low-cost trans-  
21 portable renewable feedstock (including onsite  
22 hydrogen compression, storage, and dispensing)  
23 at the facilities of a fleet operator not later  
24 than 1 year after commencement of the pro-  
25 gram;

1           “(D) operating the 10 or more hydrogen  
2 internal combustion engine hybrid electric vehi-  
3 cles for a period of 2 years; and

4           “(E) collecting emissions and fuel economy  
5 data on the 10 hydrogen-powered vehicles over  
6 various operating conditions and weather condi-  
7 tions.

8           “(3) AUTHORIZATION OF APPROPRIATIONS.—  
9 There is authorized to be appropriated to carry out  
10 this subsection \$5,000,000.”.

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