

tegrated biorefineries. The Secretary shall ensure geographical distribution of biorefinery demonstrations under this subsection. The Secretary shall not provide more than \$100,000,000 under this subsection for any single biorefinery demonstration. In making awards under this subsection, the Secretary shall encourage—

(A) the demonstration of a wide variety of lignocellulosic feedstocks;

(B) the commercial application of biomass technologies for a variety of uses, including—

- (i) liquid transportation fuels;
- (ii) high-value biobased chemicals;
- (iii) substitutes for petroleum-based feedstocks and products; and
- (iv) energy in the form of electricity or useful heat; and

(C) the demonstration of the collection and treatment of a variety of biomass feedstocks.

**(2) Proposals**

Not later than 6 months after August 8, 2005, the Secretary shall solicit proposals for demonstration of advanced biorefineries. The Secretary shall select only proposals that—

(A) demonstrate that the project will be able to operate profitably without direct Federal subsidy after initial construction costs are paid; and

(B) enable the biorefinery to be easily replicated.

**(e) University biodiesel program**

The Secretary shall establish a demonstration program to determine the feasibility of the operation of diesel electric power generators, using biodiesel fuels with ratings as high as B100, at electric generation facilities owned by institutions of higher education. The program shall examine—

(1) heat rates of diesel fuels with large quantities of cellulosic content;

(2) the reliability of operation of various fuel blends;

(3) performance in cold or freezing weather;

(4) stability of fuel after extended storage; and

(5) other criteria, as determined by the Secretary.

**(g)<sup>1</sup> Biorefinery energy efficiency**

The Secretary shall establish a program of research, development, demonstration, and commercial application for increasing energy efficiency and reducing energy consumption in the operation of biorefinery facilities.

**(h) Retrofit technologies for the development of ethanol from cellulosic materials**

The Secretary shall establish a program of research, development, demonstration, and commercial application on technologies and processes to enable biorefineries that exclusively use corn grain or corn starch as a feedstock to produce ethanol to be retrofitted to accept a range of biomass, including lignocellulosic feedstocks.

(Pub. L. 109-58, title IX, §932, Aug. 8, 2005, 119 Stat. 870; Pub. L. 110-140, title II, §224, Dec. 19, 2007, 121 Stat. 1533.)

AMENDMENTS

2007—Subsecs. (g), (h). Pub. L. 110-140 added subsecs. (g) and (h).

EFFECTIVE DATE OF 2007 AMENDMENT

Amendment by Pub. L. 110-140 effective on the date that is 1 day after Dec. 19, 2007, see section 1601 of Pub. L. 110-140, set out as an Effective Date note under section 1824 of Title 2, The Congress.

**§ 16233. Low-cost renewable hydrogen and infrastructure for vehicle propulsion**

The Secretary shall—

(1) establish a research, development, and demonstration program to determine the feasibility of using hydrogen propulsion in light-weight vehicles and the integration of the associated hydrogen production infrastructure using off-the-shelf components; and

(2) identify universities and institutions that—

(A) have expertise in researching and testing vehicles fueled by hydrogen, methane, and other fuels;

(B) have expertise in integrating off-the-shelf components to minimize cost; and

(C) within 2 years can test a vehicle based on an existing commercially available platform with a curb weight of not less than 2,000 pounds before modifications, that—

(i) operates solely on hydrogen;

(ii) qualifies as a light-duty passenger vehicle; and

(iii) uses hydrogen produced from water using only solar energy.

(Pub. L. 109-58, title IX, §933, Aug. 8, 2005, 119 Stat. 872.)

**§ 16234. Concentrating solar power research program**

**(a) In general**

The Secretary shall conduct a program of research and development to evaluate the potential for concentrating solar power for hydrogen production, including cogeneration approaches for both hydrogen and electricity.

**(b) Administration**

The program shall take advantage of existing facilities to the extent practicable and shall include—

(1) development of optimized technologies that are common to both electricity and hydrogen production;

(2) evaluation of thermochemical cycles for hydrogen production at the temperatures attainable with concentrating solar power;

(3) evaluation of materials issues for the thermochemical cycles described in paragraph (2);

(4) cogeneration of solar thermal electric power and photo-synthetic-based hydrogen production;

(5) system architectures and economics studies; and

(6) coordination with activities under the Next Generation Nuclear Plant Project estab-

<sup>1</sup> So in original. No subsec. (f) has been enacted.