

110TH CONGRESS  
1ST SESSION

# S. 1884

To amend the Farm Security and Rural Investment Act of 2002 to reauthorize and improve agricultural energy programs, and for other purposes.

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IN THE SENATE OF THE UNITED STATES

JULY 26, 2007

Mr. SALAZAR introduced the following bill; which was read twice and referred to the Committee on Agriculture, Nutrition, and Forestry

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## A BILL

To amend the Farm Security and Rural Investment Act of 2002 to reauthorize and improve agricultural energy programs, 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; TABLE OF CONTENTS.**

4 (a) SHORT TITLE.—This Act may be cited as the  
5 “Harvesting Energy Act of 2007”.

6 (b) TABLE OF CONTENTS.—The table of contents of  
7 this Act is as follows:

Sec. 1. Short title; table of contents.

### TITLE I—ENERGY

Sec. 101. Federal procurement of biobased products.

Sec. 102. Biorefinery development grants.

- Sec. 103. Biodiesel fuel education program.
- Sec. 104. Energy audit and renewable energy development program.
- Sec. 105. Renewable energy systems and energy efficiency improvements.
- Sec. 106. Biomass research and development.
- Sec. 107. Cooperative research and extension projects.
- Sec. 108. Continuation of bioenergy program.
- Sec. 109. Research, extension, and educational programs on biobased technologies and products.
- Sec. 110. Research and demonstration grants for biochar production systems.
- Sec. 111. Strategic biofuel feedstock reserve.

TITLE II—DIRECT PAYMENTS FOR VALUE-ADDED AND  
RENEWABLE ENERGY ENTERPRISES

- Sec. 201. Direct payments for value-added and renewable energy enterprises.

TITLE III—CONSERVATION

- Sec. 301. Conservation security program.
- Sec. 302. Environmental quality incentives program.
- Sec. 303. Funding and administration.

TITLE IV—CLEAN ENERGY PRACTICES

- Sec. 401. Flexible fuel vehicles.

TITLE V—RESEARCH, DEVELOPMENT, AND EDUCATION

- Sec. 501. High-priority research and extension initiatives.
- Sec. 502. Research and development.
- Sec. 503. Renewable energy research, education, and educational program.
- Sec. 504. Renewable electricity and renewable fuels research and development.

TITLE VI—FARM AND RURAL APPLICATIONS FOR PLUG-IN  
ELECTRIC DRIVE VEHICLES

- Sec. 601. Farm and rural applications for plug-in electric drive vehicles.

- 1                                   **TITLE I—ENERGY**
- 2   **SEC. 101. FEDERAL PROCUREMENT OF BIOBASED PROD-**
- 3                                   **UCTS.**
- 4       Section 9002(k)(2)(A) of the Farm Security and
- 5   Rural Investment Act of 2002 (7 U.S.C. 8102(k)(2)(A))
- 6   is amended by striking “2007” and inserting “2012”.

1 **SEC. 102. BIOREFINERY DEVELOPMENT GRANTS.**

2 Section 9003(h) of the Farm Security and Rural In-  
3 vestment Act of 2002 (7 U.S.C. 8103(h)) is amended by  
4 striking “2007” and inserting “2012”.

5 **SEC. 103. BIODIESEL FUEL EDUCATION PROGRAM.**

6 Section 9004(d) of the Farm Security and Rural In-  
7 vestment Act of 2002 (7 U.S.C. 8104(d)) is amended by  
8 striking “2007” and inserting “2012”.

9 **SEC. 104. ENERGY AUDIT AND RENEWABLE ENERGY DEVEL-**  
10 **OPMENT PROGRAM.**

11 Section 9005(i) of the Farm Security and Rural In-  
12 vestment Act of 2002 (7 U.S.C. 8105(i)) is amended by  
13 striking “2002 through 2007” and inserting “2008  
14 through 2012”.

15 **SEC. 105. RENEWABLE ENERGY SYSTEMS AND ENERGY EF-**  
16 **FICIENCY IMPROVEMENTS.**

17 (a) PYROLYSIS AND THERMOCHEMICAL CONVERSION  
18 SYSTEMS.—Section 9006(a)(1) of the Farm Security and  
19 Rural Investment Act of 2002 (7 U.S.C. 8106(a)(1)) is  
20 amended by inserting “, including pyrolysis and  
21 thermochemical conversion systems that can provide fuel  
22 and energy and electricity for use on farm or for sale”  
23 after “systems”.

24 (b) FUNDING.—Section 9006 of the Farm Security  
25 and Rural Investment Act of 2002 (7 U.S.C. 8106) is

1 amended by striking subsection (f) and inserting the fol-  
2 lowing:

3 “(f) FUNDING.—Of the funds of the Commodity  
4 Credit Corporation, the Secretary shall make available to  
5 carry out this section \$280,000,000 for each of fiscal  
6 years 2008 through 2012, of which not less than  
7 \$30,000,000 shall be used to assist in the purchase of py-  
8 rolysis and thermochemical conversion systems described  
9 in subsection (a)(1).”.

10 **SEC. 106. BIOMASS RESEARCH AND DEVELOPMENT.**

11 (a) BIOMASS RESEARCH AND DEVELOPMENT INITIA-  
12 TIVE.—Section 307 of the Biomass Research and Develop-  
13 ment Act of 2000 (7 U.S.C. 8606) is amended—

14 (1) in subsection (d)(1)—

15 (A) in the matter preceding subparagraph  
16 (A), by inserting “diversified” after “develop-  
17 ment of”;

18 (B) in subparagraph (A), by inserting  
19 “(including native grasses and short-rotation  
20 trees)” after “dedicated crops”; and

21 (C) by striking subparagraph (C) and in-  
22 serting the following:

23 “(C) the harvesting, handling, processing,  
24 transportation, and storage (including improve-  
25 ment of process technologies for the harvesting,

1 processing, and preparation components) of  
2 feedstocks, including agricultural, forest, and  
3 waste products; and”;

4 (2) in subsection (e)(3), by inserting “, and to  
5 identify best practices to maximize water efficiency”  
6 after “biobased products”; and

7 (3) in subsection (g)—

8 (A) in paragraph (2)—

9 (i) in the matter preceding subpara-  
10 graph (A), by striking “2010” and insert-  
11 ing “2012”;

12 (ii) in subparagraph (A), by striking  
13 “20 percent” and inserting “15 percent”;  
14 and

15 (iii) in subparagraph (D), by striking  
16 “5 percent” and inserting “10 percent”;  
17 and

18 (B) in paragraph (3), by striking “2010”  
19 and inserting “2012”.

20 (b) FUNDING.—Section 310 of the Biomass Research  
21 and Development Act of 2000 (7 U.S.C. 8609) is amend-  
22 ed—

23 (1) in subsection (a), by striking paragraph (2)  
24 and inserting the following:

1           “(2) \$200,000,000 for each of fiscal years 2008  
2 through 2012;” and

3           (2) in subsection (b), by striking “2015” and  
4 inserting “2012”.

5 **SEC. 107. COOPERATIVE RESEARCH AND EXTENSION**  
6 **PROJECTS.**

7           Section 221 of the Agricultural Risk Protection Act  
8 of 2000 (7 U.S.C. 6711) is amended by striking “2007”  
9 each place it appears and inserting “2012”.

10 **SEC. 108. CONTINUATION OF BIOENERGY PROGRAM.**

11           (a) **FEEDSTOCK RESIDUE MANAGEMENT PRO-**  
12 **GRAM.**—Section 9010 of the Farm Security and Rural In-  
13 vestment Act of 2002 (7 U.S.C. 8108) is amended—

14           (1) in subsection (b), by striking “subsection  
15 (c)” each place it appears in paragraphs (4) and (6)  
16 and inserting “subsection (e)”;

17           (2) by redesignating subsection (c) as sub-  
18 section (e); and

19           (3) by inserting after subsection (b) the fol-  
20 lowing:

21           “(c) **FEEDSTOCK RESIDUE MANAGEMENT PRO-**  
22 **GRAM.**—

23           “(1) **IN GENERAL.**—As part of the program  
24 carried out under this section, the Secretary shall es-  
25 tablish a feedstock residue management program

1 under which the Secretary shall provide incentives to  
2 agricultural producers (including forest owners) to  
3 properly collect, store, and transport cellulosic feed-  
4 stocks for biofuel production.

5 “(2) INCENTIVES.—In providing incentives  
6 under this subsection, the Secretary shall ensure, to  
7 the maximum extent practicable, that water quality,  
8 soil quality, wildlife habitat, and air quality are pro-  
9 tected and enhanced.

10 “(d) TRANSITION ASSISTANCE PROGRAM.—

11 “(1) IN GENERAL.—As part of the program  
12 carried out under this section, the Secretary shall es-  
13 tablish a transition assistance program for biomass  
14 energy feedstocks under which the Secretary shall  
15 provide funds to cellulosic biorefineries for use in  
16 making transition payments to agricultural pro-  
17 ducers, forest landowners, and ranchers for the con-  
18 version of land to energy crop production in prepara-  
19 tion for bioenergy operations.

20 “(2) REQUIREMENTS.—In carrying out the pro-  
21 gram under this subsection, the Secretary shall—

22 “(A) require an agricultural producer, for-  
23 est landowner, or rancher participating in the  
24 program to establish, on land of the agricul-  
25 tural producer, forest landowner, or rancher, 1

1 or more crops of perennial plant material (such  
2 as switch-grass or short-rotation trees);

3 “(B) require that, with respect to a land  
4 conversion described in paragraph (1), an agri-  
5 cultural producer, forest landowner, or rancher  
6 shall ensure the protection and enhancement of  
7 soil quality and the prevention of soil erosion,  
8 nutrient leaching, and run off, particularly if  
9 the converted land is withdrawn from or other-  
10 wise was previously enrolled in the conservation  
11 reserve program established under subchapter  
12 B of chapter 1 of subtitle D of title XII of the  
13 Food Security Act of 1985 (16 U.S.C. 3831 et  
14 seq.) or other reserve program or is marginal,  
15 sensitive, or eroded land; and

16 “(C) provide to the agricultural producer,  
17 forest landowner, or rancher an annual pay-  
18 ment during the period required to establish the  
19 crops on the land of the agricultural producer,  
20 forest landowner, or rancher.”.

21 (b) FUNDING.—Subsection (e) of section 9010 of the  
22 Farm Security and Rural Investment Act of 2002 (7  
23 U.S.C. 8108) (as redesignated by subsection (a)(2)) is  
24 amended—

1           (1) in paragraph (1), by striking “and” at the  
2           end;

3           (2) in paragraph (2), by striking the period at  
4           the end and inserting a semicolon; and

5           (3) by adding at the end the following:

6           “(3) \$158,000,000 for fiscal year 2008, of  
7           which there shall be used to carry out subsection (c)  
8           not less than \$8,000,000; and

9           “(4) \$325,000,000 for each of fiscal years 2009  
10          through 2012, of which—

11           “(A) there shall be used to carry out sub-  
12          section (c) not less than—

13           “(i) \$16,000,000 for fiscal year 2009;

14           “(ii) \$32,000,000 for fiscal year 2010;

15           “(iii) \$44,000,000 for fiscal year  
16          2011; and

17           “(iv) \$75,000,000 for fiscal year  
18          2012; and

19           “(B) there shall be used to carry out sub-  
20          section (d) not more than \$150,000,000 for  
21          each fiscal year.”.

1 **SEC. 109. RESEARCH, EXTENSION, AND EDUCATIONAL PRO-**  
2 **GRAMS ON BIOBASED TECHNOLOGIES AND**  
3 **PRODUCTS.**

4 (a) DATABASE.—Section 9011(e)(2) of the Farm Se-  
5 curity and Rural Investment Act of 2002 (7 U.S.C.  
6 8109(e)(2)) is amended by adding at the end the fol-  
7 lowing:

8 “(C) DATABASE.—To be eligible to receive  
9 a grant under this paragraph, not later than 1  
10 year after the date of enactment of this sub-  
11 paragraph, each land-grant college or university  
12 that receives a grant shall make available to the  
13 public all information on biomass and other re-  
14 newable energy resources, in a centralized,  
15 interactive database or wiki created and main-  
16 tained by the Secretary.”.

17 (b) PRIORITIES.—Section 9011(f)(1) of the Farm Se-  
18 curity and Rural Investment Act of 2002 (7 U.S.C.  
19 8109(f)(1)) is amended by striking the period at the end  
20 and inserting “, including—

21 “(A) the development of regional-scale ag-  
22 ronomic production systems for energy feed-  
23 stocks;

24 “(B) regional-scale analysis of natural re-  
25 source management and environmental impacts  
26 of residue removal;

1           “(C) development of economically useful  
2           biobased byproducts; and

3           “(D) the facilitation of economic diver-  
4           sification in rural communities.”.

5           (c) AUTHORIZATION OF APPROPRIATIONS.—Section  
6 9011(j)(1)(C) of the Farm Security and Rural Investment  
7 Act of 2002 (7 U.S.C. 8109(j)(1)(C)) is amended by strik-  
8 ing “2010” and inserting “2015”.

9           **SEC. 110. RESEARCH AND DEMONSTRATION GRANTS FOR**  
10                                   **BIOCHAR PRODUCTION SYSTEMS.**

11           Title IX of the Farm Security and Rural Investment  
12 Act of 2002 (7 U.S.C. 8101 et seq.) is amended by adding  
13 at the end the following:

14           **“SEC. 9012. RESEARCH AND DEMONSTRATION GRANTS FOR**  
15                                   **BIOCHAR PRODUCTION SYSTEMS.**

16           “(a) DEFINITION OF BIOCHAR.—In this section, the  
17 term ‘biochar’ means charcoal or biomass-derived black  
18 carbon that is added to soil to improve soil fertility, nutri-  
19 ent retention, and carbon sequestration.

20           “(b) GRANTS.—The Secretary shall award competi-  
21 tive grants to eligible entities to assist in paying the cost  
22 of research and development to develop and commercialize  
23 biochar production systems on multiple scales (including  
24 on a single farm, local community, and cooperative scale),  
25 with a goal of creating production systems that maximize

1 the coproduction of renewable energy and biochar for use  
2 as a soil enhancement.

3 “(c) **ELIGIBLE ENTITIES.**—To be eligible to receive  
4 a grant under this section, an entity shall be an eligible  
5 entity described in section 9003(d).

6 “(d) **AUTHORIZATION OF APPROPRIATIONS.**—There  
7 is authorized to be appropriated to carry out this section  
8 \$10,000,000 for each of fiscal years 2008 through 2012.”.

9 **SEC. 111. STRATEGIC BIOFUEL FEEDSTOCK RESERVE.**

10 Title IX of the Farm Security and Rural Investment  
11 Act of 2002 (7 U.S.C. 8101 et seq.) (as amended by sec-  
12 tion 110) is amended by adding at the end the following:

13 **“SEC. 9013. STRATEGIC BIOFUEL FEEDSTOCK RESERVE.**

14 “(a) **DEFINITIONS.**—In this section:

15 “(1) **ELIGIBLE COMMODITY.**—The term ‘eligible  
16 commodity’ means a biofuel feedstock that is pro-  
17 duced in the United States.

18 “(2) **FEEDSTOCK RESERVE.**—The term ‘feed-  
19 stock reserve’ means the sum of all eligible commod-  
20 ities stored by producers in accordance with sub-  
21 section (b)(2).

22 “(3) **PRODUCER.**—The term ‘producer’ has the  
23 meaning given the term in section 1001.

1       “(b) PROGRAM.—The Secretary shall carry out a  
2 strategic biofuel feedstock reserve program under which  
3 the Secretary shall—

4           “(1) purchase eligible commodities from pro-  
5 ducers; and

6           “(2) store the eligible commodities with the pro-  
7 ducers.

8       “(c) PURCHASES.—

9           “(1) IN GENERAL.—The Secretary shall pur-  
10 chase an eligible commodity at commercial rates in  
11 order to establish, maintain, or enhance the feed-  
12 stock reserve in any case in which, as determined by  
13 the Secretary—

14           “(A) the eligible commodity is in abundant  
15 supply;

16           “(B) there is need for adequate carryover  
17 stocks to ensure a reliable supply of the eligible  
18 commodities to meet renewable energy de-  
19 mands;

20           “(C) the average price of the eligible com-  
21 modity in a county is less than 100 percent of  
22 the applicable loan rate for a nonrecourse mar-  
23 keting assistance loan made available under  
24 subtitle B of title I; and

1           “(D) the purchase is necessary to ensure  
2           an adequate supply of a renewable fuel in the  
3           marketplace.

4           “(2) LIMITATION.—Purchases by the Secretary  
5           under paragraph (1) shall be limited to—

6           “(A) the type and quantity of an eligible  
7           commodity necessary to provide for not more  
8           than 1 year of estimated use for renewable en-  
9           ergy purposes; and

10           “(B) quantities of an eligible commodity  
11           for research and development of renewable  
12           fuels.

13           “(d) SALE OF STOCKS.—An eligible commodity shall  
14           not be sold from the feedstock reserve unless—

15           “(1) the average market price of the eligible  
16           commodity in the United States is not less than the  
17           applicable loan rate for a nonrecourse marketing as-  
18           sistance loan made available under subtitle B of title  
19           I; and

20           “(2) the eligible commodity will be used to  
21           produce renewable energy.

22           “(e) STORAGE PAYMENTS.—Payments made by the  
23           Secretary for the storage of an eligible commodity shall  
24           reflect local commercial storage rates.

1       “(f) AUTHORIZATION OF APPROPRIATIONS.—There  
 2 are authorized to be appropriated such sums as are nec-  
 3 essary to carry out this section for each of fiscal years  
 4 2008 through 2012.”.

5 **TITLE II—DIRECT PAYMENTS**  
 6 **FOR VALUE-ADDED AND RE-**  
 7 **NEWABLE ENERGY ENTER-**  
 8 **PRISES**

9 **SEC. 201. DIRECT PAYMENTS FOR VALUE-ADDED AND RE-**  
 10 **NEWABLE ENERGY ENTERPRISES.**

11       Title IX of the Farm Security and Rural Investment  
 12 Act of 2002 (7 U.S.C. 8101 et seq.) (as amended by sec-  
 13 tion 111) is amended by adding at the end the following:

14 **“SEC. 9014. DIRECT PAYMENTS FOR VALUE-ADDED AND RE-**  
 15 **NEWABLE ENERGY ENTERPRISES.**

16       “(a) DEFINITIONS.—In this section:

17               “(1) PRODUCER.—The term ‘producer’ has the  
 18 meaning given the term in section 1001.

19               “(2) QUALIFIED VALUE-ADDED ENTERPRISE.—  
 20 The term ‘qualified value-added enterprise’ means a  
 21 value-added or renewable energy business enterprise  
 22 that—

23                       “(A)(i) adds value to an agricultural prod-  
 24 uct (including ethanol, methanol, electrical  
 25 power, biodiesel, wind, building materials, lubri-

1 cants, soil amendments such as biochar, bio-oils  
2 or biogases, and adhesives); or

3 “(ii) improves the production of an agricul-  
4 tural commodity through efficiency gains or en-  
5 vironmental benefits;

6 “(B) is located in a rural area (as defined  
7 in section 343(a) of the Consolidated Farm and  
8 Rural Development Act (7 U.S.C. 1991(a));  
9 and

10 “(C) is certified by the Secretary.

11 “(b) PROGRAM.—The Secretary shall carry out a pro-  
12 gram under which the Secretary shall provide direct pay-  
13 ments to producers to match the equity investment of the  
14 producers in qualified value-added enterprises.

15 “(c) AMOUNT.—A direct payment described in sub-  
16 section (b) shall not exceed \$10,000.

17 “(d) USE OF FUNDS.—A producer may use funds re-  
18 ceived under this section only to invest in qualified value-  
19 added enterprises located in the same region as the pro-  
20 ducer.

21 “(e) AUTHORIZATION OF APPROPRIATIONS.—There  
22 are authorized to be appropriated such sums as are nec-  
23 essary to carry out this section for each of fiscal years  
24 2008 through 2012.”.

1           **TITLE III—CONSERVATION**

2   **SEC. 301. CONSERVATION SECURITY PROGRAM.**

3           (a) **IN GENERAL.**—Section 1238A(a) of the Food Se-  
4   curity Act of 1985 (16 U.S.C. 3838a(a)) is amended by  
5   striking “2011” and inserting “2012”.

6           (b) **TECHNICAL ASSISTANCE.**—Section 1238C(g) of  
7   the Food Security Act of 1985 (16 U.S.C. 3838c(g)) is  
8   amended by striking “2007” and inserting “2012”.

9           (c) **BIOMASS FEEDSTOCK PILOT PROGRAM.**—Sub-  
10   chapter A of chapter 2 of subtitle D of title XII of the  
11   Food Security Act of 1985 (16 U.S.C. 3838 et seq.) is  
12   amended by adding at the end the following:

13   **“SEC. 1238D. BIOMASS FEEDSTOCK PILOT PROGRAM.**

14           “(a) **DEFINITIONS.**—In this section:

15                   “(1) **BIOMASS.**—

16                           “(A) **IN GENERAL.**—In this section, the  
17                           term ‘biomass’ means any biological matter that  
18                           is available on a renewable or recurring basis.

19                           “(B) **INCLUSIONS.**—The term ‘biomass’ in-  
20                           cludes—

21                                   “(i) agricultural crops and trees;

22                                   “(ii) wood and wood wastes and resi-  
23                                   dues;

24                                   “(iii) plants (including aquatic  
25                                   plants);

1                   “(iv) grasses;  
2                   “(v) residue;  
3                   “(vi) fibers; and  
4                   “(vii) animal waste, municipal waste,  
5                   and other waste material.

6                   “(2) LOCAL AREA.—The term ‘local area’  
7                   means an area that is physically located within a 75-  
8                   mile radius of an existing or proposed biorefinery.

9                   “(b) PROGRAM.—The Secretary shall carry out a  
10 pilot program under which the Secretary shall offer to  
11 enter into conservation security contracts with eligible pro-  
12 ducers (including agricultural producers, ranchers, and  
13 forest landowners) in a local area that produce biomass  
14 feedstocks using methods that enhance soil, water, and air  
15 quality and conserve natural resources.”.

16                   (d) BIOCHAR DEMONSTRATION PROJECTS.—Sub-  
17 chapter A of chapter 2 of subtitle D of title XII of the  
18 Food Security Act of 1985 (16 U.S.C. 3838 et seq.) (as  
19 amended by subsection (c)) is amended by adding at the  
20 end the following:

21                   **“SEC. 1238E. BIOCHAR DEMONSTRATION PROJECTS.**

22                   “(a) DEFINITION OF BIOCHAR.—In this section, the  
23 term ‘biochar’ means charcoal or biomass-derived black  
24 carbon that is added to soil to improve soil fertility, nutri-  
25 ent retention, and soil carbon sequestration.

1       “(b) DEMONSTRATION PROJECTS.—In carrying out  
2 the conservation security program under this subchapter,  
3 the Secretary shall carry out demonstration projects that  
4 demonstrate, on a farm-scale and local agricultural coop-  
5 erative-scale, the advantages of using biochar production  
6 systems (including pyrolysis and thermocombustion sys-  
7 tems) to improve renewable energy production and protect  
8 and enhance soil quality.

9       “(c) USE OF BIOCHAR TO GENERATE AGRICUL-  
10 TURAL CREDITS FOR CARBON TRADING.—

11           “(1) IN GENERAL.—The Secretary shall carry  
12 out demonstration projects under this section in a  
13 manner that demonstrates the manner in which  
14 biochar may be used to generate agricultural credits  
15 for carbon trading in any greenhouse gas emissions  
16 reduction program.

17           “(2) SOURCES OF GREENHOUSE GAS EMISSIONS  
18 REDUCTIONS.—In carrying out this subsection, the  
19 Secretary shall, to the maximum extent practicable,  
20 demonstrate that greenhouse gas emissions reduc-  
21 tions can be achieved from—

22           “(A) fossil fuel displacement through on-  
23 farm production of bioenergy using a biochar  
24 production system;

1           “(B) the building of stable soil sinks, using  
2 biochar; and

3           “(C) reduced nitrous oxide emissions asso-  
4 ciated with—

5                 “(i) the impact of biochar in soils; and

6                 “(ii) reductions in nitrogen fertilizer  
7 requirements due to greater fertilizer effi-  
8 ciencies with biochar applications.

9           “(3) HIGH-PRIORITY RESEARCH AND DEM-  
10 ONSTRATION.—In carrying out this subsection, the  
11 Secretary shall, to the maximum extent practicable,  
12 promote high-priority research and demonstration  
13 by—

14                 “(A) in the case of biochar production and  
15 commercialization—

16                         “(i) producing a consistent, high-qual-  
17 ity biochar product and an analysis of the  
18 properties, chemical structure, and per-  
19 formance of biochar in different soil types;

20                         “(ii) optimizing coproduction of  
21 biochar and bioenergy; and

22                         “(iii) scaling up of biochar production;

23                 “(B) in the case of biochar behavior in the  
24 environment, analyzing—

1                   “(i) biochar performance by soil type,  
2                   feedstock, and production method; and

3                   “(ii) application rates and effects in  
4                   soils; and

5                   “(C) in the case of economic and life-cycle  
6                   issues, analyzing—

7                   “(i) the full production costs versus  
8                   the economic benefits of biochar;

9                   “(ii) the impact of biochar on green-  
10                  house gas emissions, including the per-  
11                  formance of biochar in carbon markets;

12                  “(iii) the availability of feedstocks or  
13                  competition of biochar with other biofuels;

14                  “(iv) the impact of biomass removal  
15                  on soil quality and erosion;

16                  “(v) the potential to reduce fertilizer  
17                  use, greenhouse gas emissions, nutrient  
18                  leaching, and run-off; and

19                  “(vi) the potential to reduce water  
20                  pollution from feedlot runoff by capturing  
21                  ammonia as a valuable addition to agricul-  
22                  tural charcoal.

23                  “(d) FUNDING.—Of the funds that are made avail-  
24                  able to carry out this subchapter, the Secretary shall use

1 to carry out this section not less than \$20,000,000 for  
 2 each of fiscal years 2008 through 2012.”.

3 **SEC. 302. ENVIRONMENTAL QUALITY INCENTIVES PRO-**  
 4 **GRAM.**

5 (a) **IN GENERAL.**—Section 1240B(a)(1) of the Food  
 6 Security Act of 1985 (16 U.S.C. 3839aa–2(a)(1)) is  
 7 amended by striking “2010” and inserting “2012”.

8 (b) **ALLOCATION OF FUNDING.**—Section 1240B(g) of  
 9 the Food Security Act of 1985 (16 U.S.C. 3839aa–2(g))  
 10 is amended—

11 (1) by striking “For each of fiscal years 2002  
 12 through 2007” and inserting the following:

13 “(1) **LIVESTOCK PRODUCTION.**—For each of  
 14 fiscal years 2002 through 2012”; and

15 (2) by adding at the end the following:

16 “(2) **BIOENERGY PRODUCTS.**—For each of fis-  
 17 cal years 2008 through 2012, the Secretary may use  
 18 funds made available to carry out this chapter to fa-  
 19 cilitate practices relating to the production of bio-  
 20 energy products, including by assisting producers—

21 “(A) to install biodigesters, biogasifiers, or  
 22 biochar production units;

23 “(B) to conserve water;

24 “(C) to control erosion;

25 “(D) to improve wildlife habitat; and

1 “(E) to enhance soil quality.”.

2 (c) GROUND AND SURFACE WATER CONSERVA-  
3 TION.—Section 1240I(c)(1)(C)) of the Food Security Act  
4 of 1985 (16 U.S.C. 3839aa–9(c)(1)(C)) is amended by  
5 striking “2007” and inserting “2012”.

6 **SEC. 303. FUNDING AND ADMINISTRATION.**

7 Section 1241(a) of the Food Security Act of 1985  
8 (16 U.S.C. 3841(a)) is amended in the matter preceding  
9 paragraph (1) by striking “2007” and inserting “2012”.

10 **TITLE IV—CLEAN ENERGY**  
11 **PRACTICES**

12 **SEC. 401. FLEXIBLE FUEL VEHICLES.**

13 Title IX of the Farm Security and Rural Investment  
14 Act of 2002 (7 U.S.C. 8101 et seq.) (as amended by sec-  
15 tion 201) is amended by adding at the end the following:

16 **“SEC. 9015. FLEXIBLE FUEL VEHICLES.**

17 “(a) DEFINITIONS.—In this section:

18 “(1) FLEXIBLE FUEL VEHICLE.—The term  
19 ‘flexible fuel vehicle’ means—

20 “(A) a GEM flex fuel vehicle; and

21 “(B) a vehicle warranted by the manufac-  
22 turer of the vehicle to operate on biodiesel.

23 “(2) GEM FLEX FUEL VEHICLE.—

24 “(A) IN GENERAL.—The term ‘GEM flex  
25 fuel vehicle’ means a motor vehicle warranted

1 by the manufacturer of the vehicle to operate  
2 on gasoline, E85, and M85.

3 “(B) RELATED DEFINITIONS.—In sub-  
4 paragraph (A):

5 “(i) E85.—The term ‘E85’ means a  
6 fuel blend containing 85 percent ethanol  
7 and 15 percent gasoline, by volume.

8 “(ii) M85.—The term ‘M85’ means a  
9 fuel blend containing 85 percent methanol  
10 and 15 percent gasoline, by volume.

11 “(b) USE OF FLEXIBLE FUEL VEHICLES.—Begin-  
12 ning not later than 180 days after the date of enactment  
13 of this section, the Secretary shall ensure that all vehicles  
14 purchased or leased by the Department of Agriculture are  
15 flexible fuel vehicles that, to the maximum extent prac-  
16 ticable, use biobased fuels.”.

17 **TITLE V—RESEARCH, DEVELOP-**  
18 **MENT, AND EDUCATION**

19 **SEC. 501. HIGH-PRIORITY RESEARCH AND EXTENSION INI-**  
20 **TIATIVES.**

21 (a) HIGH-PRIORITY RESEARCH AND EXTENSION  
22 AREAS.—Section 1672(e) of the Food, Agriculture, Con-  
23 servation, and Trade Act of 1990 (7 U.S.C. 5925(e)) is  
24 amended by adding at the end the following:



1           “(1) to conduct research on and develop high-  
2           quality energy crops that—

3                   “(A) have high energy production values;

4                   “(B) are cost efficient for producers and  
5           refiners;

6                   “(C) are well suited to high yields with  
7           minimal inputs in arid and semiarid regions;  
8           and

9                   “(D) are regionally appropriate;

10           “(2) to conduct research on and develop bio-  
11           refining and biofuels through multidisciplinary re-  
12           search, including research relating to—

13                   “(A) biochemical engineering;

14                   “(B) process engineering;

15                   “(C) thermochemical engineering;

16                   “(D) product engineering; and

17                   “(E) systems engineering;

18           “(3) to develop cost-effective methods for the  
19           harvesting, handling, transport, and storage of cel-  
20           lulosic biomass feedstocks;

21           “(4) to conduct research on and develop fer-  
22           tilizers from biobased sources other than hydro-  
23           carbon fuels;

24           “(5) to develop energy- and water-efficient irri-  
25           gation systems;

1           “(6) to research and develop water-efficient  
2 biofuel production technologies;

3           “(7) to research and develop additional  
4 biobased products;

5           “(8) in cooperation with the Department of En-  
6 ergy and the Department of Defense, to develop  
7 storage technologies for wind- and solar-generated  
8 power for small-scale and utility-scale generation fa-  
9 cilities; and

10          “(9) in cooperation with the Department of En-  
11 ergy, to research fuel cell technologies for use in  
12 farm, ranch, and rural applications.

13          “(b) FUNDING.—

14           “(1) MANDATORY FUNDS.—

15           “(A) TRANSFER.—In addition to any other  
16 funds made available under paragraph (2), be-  
17 ginning on October 1, 2007, and on each Octo-  
18 ber 1 thereafter through October 1, 2011, out  
19 of any funds in the Treasury not otherwise ap-  
20 propriated, the Secretary of the Treasury shall  
21 transfer to the Secretary, \$5,000,000 to carry  
22 out this section, to remain available until ex-  
23 pended.

24           “(B) RECEIPT AND ACCEPTANCE.—The  
25 Secretary shall be entitled to receive, shall ac-

1           cept, and shall use to carry out this section the  
2           funds transferred under subparagraph (A),  
3           without further appropriation.

4           “(2) AUTHORIZATION OF APPROPRIATIONS.—In  
5           addition to any other funds made available under  
6           paragraph (1), there are authorized to be appro-  
7           priated—

8                   “(A) \$110,000,000 to the Under Secretary  
9                   for Research, Education, and Economics, acting  
10                  through the Agricultural Research Service, for  
11                  cellulosic biofuel research for each of fiscal  
12                  years 2008 through 2012;

13                  “(B) \$110,000,000 to the Secretary and  
14                  the Secretary of Energy for the development of  
15                  smaller-scale biorefineries and biofuel plants for  
16                  each of fiscal years 2008 through 2012; and

17                  “(C) such sums as are necessary to carry  
18                  out this section.”.

19 **SEC. 503. RENEWABLE ENERGY RESEARCH, EDUCATION,**  
20 **AND EDUCATIONAL PROGRAM.**

21           Title IX of the Farm Security and Rural Investment  
22 Act of 2002 (7 U.S.C. 8101 et seq.) (as amended by sec-  
23 tion 502(a)) is amended by adding at the end the fol-  
24 lowing:

1 **“SEC. 9017. RENEWABLE ENERGY RESEARCH, EDUCATION,**  
2 **AND EDUCATIONAL PROGRAM.**

3 “(a) IN GENERAL.—The Secretary, in cooperation  
4 with the Administrator of the Environmental Protection  
5 Agency and the Secretary of Energy, shall establish a pro-  
6 gram under which the Secretary shall—

7 “(1) establish a standardized protocol for mar-  
8 ket-based trading of greenhouse gas emissions re-  
9 ductions from soil carbon sequestration, based on ex-  
10 isting technologies to measure, monitor, and verify  
11 soil carbon sequestration and increases in soil carbon  
12 stocks associated with agricultural management  
13 practices;

14 “(2) revise the standardized protocols estab-  
15 lished under paragraph (1) as necessary and as tech-  
16 nological advancements warrant, to ensure full mar-  
17 ket participation and remuneration for those credits  
18 in market-based greenhouse gas emissions reduction  
19 programs;

20 “(3) provide information to agricultural pro-  
21 ducers concerning the economic (including market-  
22 based sale and trading opportunities) and environ-  
23 mental benefits of conservation and management  
24 practices that increase soil carbon sequestration; and

25 “(4) provide grants to—

1           “(A) land-grant colleges and universities  
2           (as defined in section 9011(b))—

3                   “(i) to develop renewable energy and  
4                   value-added curricula that provide training  
5                   for individuals pursuing careers in the re-  
6                   newable energy field (including individuals  
7                   majoring in renewable energy engineering);

8                   “(ii) to provide extension services re-  
9                   lating to renewable energy; and

10                   “(iii) to encourage cellulosic biofuel  
11                   research; and

12                   “(B) nonprofit organizations to educate  
13                   fleet operators and the public about the benefits  
14                   of biodiesel and other renewable fuels.

15           “(b) AUTHORIZATION OF APPROPRIATIONS.—There  
16           are authorized to be appropriated such sums as are nec-  
17           essary to carry out this section.”.

18   **SEC. 504. RENEWABLE ELECTRICITY AND RENEWABLE**  
19                   **FUELS RESEARCH AND DEVELOPMENT.**

20           Title IX of the Farm Security and Rural Investment  
21           Act of 2002 (7 U.S.C. 8101 et seq.) (as amended by sec-  
22           tion 503) is amended by adding at the end the following:

1 **“SEC. 9018. RENEWABLE ELECTRICITY AND RENEWABLE**  
2 **FUELS RESEARCH AND DEVELOPMENT.**

3 “(a) JOINT RESEARCH WITH THE DEPARTMENT OF  
4 ENERGY.—

5 “(1) NATIONAL GOAL.—It is a goal of the  
6 United States that by calendar year 2025, the costs  
7 of producing electricity in the United States from re-  
8 newable resources shall be reduced by at least 45  
9 percent from the cost of producing electricity from  
10 renewable resources as of the date of enactment of  
11 this section.

12 “(2) STUDY.—The Secretary and the Secretary  
13 of Energy (referred to in this subsection as the ‘Sec-  
14 retaries’) shall jointly carry out a study that—

15 “(A) identifies research, development, dem-  
16 onstration, and deployment steps necessary to  
17 achieve the national goal described in para-  
18 graph (1);

19 “(B) comprehensively examines the infra-  
20 structure needs of the renewable fuels sector,  
21 including a study of biofuel pipeline needs and  
22 feasibility;

23 “(C) assesses the water requirements nec-  
24 essary to produce and process biobased and re-  
25 newable energy feedstocks from agricultural  
26 production, forestry, and waste;

1           “(D) determines whether adequate water  
2 resources are projected to be available to  
3 meet—

4           “(i) the requirements described in  
5 subparagraph (C); and

6           “(ii) current and projected drinking  
7 water, sanitation, and ecosystem needs;

8           “(E) identifies best practices to maximize  
9 water efficiency; and

10           “(F) quantifies and verifies the carbon se-  
11 questration benefits of various bioenergy and  
12 agricultural crops and practices, including the  
13 development of models to estimate the carbon  
14 sequestration benefits for different crops on dif-  
15 ferent soils.

16           “(3) REPORT.—Not later than 3 years after the  
17 date of enactment of this section, and every 3 years  
18 thereafter, the Secretaries shall submit to Congress  
19 a report that includes—

20           “(A) the progress of the Secretaries in  
21 meeting the national goal described in para-  
22 graph (1);

23           “(B) any recommendations of the Secre-  
24 taries to ensure that the national goal is met;  
25 and

1           “(C) the results of the study carried out  
2           under paragraph (2), including recommenda-  
3           tions—

4                   “(i) to ensure delivery of adequate re-  
5                   newable fuels and feedstocks to the mar-  
6                   ket; and

7                   “(ii) to ensure the availability of ade-  
8                   quate water resources.

9           “(b) ADDITIONAL RESEARCH AND DEVELOPMENT.—

10 The Secretary shall carry out a research and development  
11 program under which the Secretary shall study—

12                   “(1) the use of alternative, renewable feedstocks  
13                   and power sources, including livestock waste, to  
14                   produce biofuels;

15                   “(2) methods to sustainably increase agricul-  
16                   tural and forestry crop energy yields while enhancing  
17                   environmental benefits, in particular improving soil  
18                   quality and air quality;

19                   “(3) methods of developing small-scale and dis-  
20                   tributed renewable energy technologies;

21                   “(4) biochar, animal agriculture residues, and  
22                   other potential non-fossil-fuel-based, renewable fer-  
23                   tilizers to integrate energy production or agricultural  
24                   management practices with enhanced soil quality  
25                   and long-term carbon sequestration;

1           “(5) the development of efficient and environ-  
2           mentally-sensitive harvesting equipment, including  
3           as 1-pass equipment, for agricultural production and  
4           forestry;

5           “(6) the use of algae for the production of bio-  
6           diesel and other biobased fuels and energy;

7           “(7) the use of biotechnology, under acceptable  
8           protocols, to develop and deploy high-yielding or eas-  
9           ily-fermentable biomass energy feedstocks or syngas  
10          derived from biomass energy feedstocks; and

11          “(8) methods to develop and deploy distributed  
12          or portable biomass feedstock processing systems.

13          “(c) SAFETY PROTOCOLS.—The Secretary shall carry  
14          out a program under which the Secretary provides coordi-  
15          nation, outreach, and technical assistance to develop pro-  
16          tocols for—

17               “(1) the safe introduction of new biomass en-  
18               ergy feedstocks, including by allowing crop testing to  
19               determine local compatibility while protecting exist-  
20               ing agriculture and habitats;

21               “(2) the safe disposal of livestock and poultry  
22               carcasses, including alternative uses; and

23               “(3) the environmentally-sound production of  
24               feedstocks and use wastes for energy production.

25          “(d) FUNDING.—

1           “(1) IN GENERAL.—On October 1, 2007, and  
 2           on each October 1 thereafter through October 1,  
 3           2011, out of any funds in the Treasury not other-  
 4           wise appropriated, the Secretary of the Treasury  
 5           shall transfer to the Secretary—

6                   “(A) \$120,000,000 to carry out subsection  
 7           (a);

8                   “(B) \$120,000,000 to carry out subsection  
 9           (b); and

10                   “(C) \$60,000,000 to carry out subsection  
 11           (c).

12           “(2) RECEIPT AND ACCEPTANCE.—The Sec-  
 13           retary shall be entitled to receive, shall accept, and  
 14           shall use to carry out this section the funds trans-  
 15           ferred under paragraph (1), without further appro-  
 16           priation.

17           “(3) AVAILABILITY OF FUNDS.—Funds trans-  
 18           ferred under paragraph (1) shall remain available  
 19           until expended.”.

20 **TITLE VI—FARM AND RURAL AP-**  
 21 **PLICATIONS FOR PLUG-IN**  
 22 **ELECTRIC DRIVE VEHICLES**

23 **SEC. 601. FARM AND RURAL APPLICATIONS FOR PLUG-IN**  
 24 **ELECTRIC DRIVE VEHICLES.**

25           (a) DEFINITIONS.—In this section:

1           (1) PLUG-IN ELECTRIC DRIVE VEHICLE.—The  
2           term “plug-in electric drive vehicle” means a  
3           precommercial vehicle that—

4                   (A) draws motive power from a battery of  
5                   at least 4 kWh;

6                   (B) can be recharged from an external  
7                   source of electricity for motive power; and

8                   (C) is a light-duty, medium-duty, or heavy-  
9                   duty on-road or nonroad vehicle.

10           (2) SECRETARY.—The term “Secretary” means  
11           the Secretary of Agriculture.

12           (b) ESTABLISHMENT.—The Secretary, after con-  
13           sultation with the Secretary of Energy, shall establish a  
14           competitive demonstration program to provide grants on  
15           a cost-shared basis to State governments, local govern-  
16           ments, air pollution control districts, private or nonprofit  
17           entities, and any combinations of those entities, to carry  
18           out a projects to demonstrate farm and rural applications  
19           for plug-in electric drive vehicles.

20           (c) APPLICATIONS.—The Secretary shall establish re-  
21           quirements for applications for grants under this section,  
22           including, at a minimum, a requirement that an applicant  
23           shall describe the means by which the applicant will collect  
24           and summarize data for dissemination to the Department,  
25           other grantees, and the public, on—

1           (1) vehicle and component performance, includ-  
2           ing performance of the battery, energy management,  
3           and charging systems, under various driving speeds,  
4           trip ranges, traffic, and other driving conditions;

5           (2) vehicle and component costs, including ac-  
6           quisition, operating, and maintenance costs;

7           (3) vehicle emissions, including emissions of  
8           greenhouse gases; and

9           (4) petroleum displacement as a result of the  
10          project.

11          (d) SOLICITATION.—Not later than 180 days after  
12          the date of enactment of this Act, and annually thereafter,  
13          the Secretary shall solicit proposals to demonstrate plug-  
14          in hybrid electric vehicles.

15          (e) SELECTION CRITERIA.—

16           (1) PRIORITY.—In providing grants under this  
17           section, the Secretary shall—

18           (A) take into consideration the experience  
19           of each applicant with respect to plug-in hybrid  
20           electric vehicles; and

21           (B) give priority to applicants that—

22           (i) demonstrate a path to commer-  
23           cialization for the vehicles demonstrated;  
24           and

1                   (ii) are likely to make a significant  
2                   contribution to the advancement of the  
3                   technology and production in the United  
4                   States.

5                   (2) SCOPE.—The Secretary shall ensure that  
6                   projects carried out using a grant provided under  
7                   this section—

8                   (A) demonstrate the operation of plug-in  
9                   hybrid vehicles under various driving speeds,  
10                  trip ranges, driving conditions, climate condi-  
11                  tions, and topography conditions;

12                  (B) demonstrate light-, medium-, and  
13                  heavy-duty vehicles with a variety of battery  
14                  and engine-turn-on control systems;

15                  (C) demonstrate plug-in hybrid vehicles in  
16                  a variety of applications, including—

17                         (i) farm equipment applications;

18                         (ii) rural school bus applications;

19                         (iii) mass market passenger and light-  
20                         duty truck applications in rural areas; and

21                         (iv) fleet applications in rural areas;

22                  (D) demonstrate vehicles from original  
23                  equipment manufacturers, Tier I suppliers, or  
24                  other entities capable of achieving commer-  
25                  cialization of the technology; and

1           (E) provide an opportunity for innovation  
2           and creativity from small and breakthrough  
3           technology companies.

4           (f) OTHER REQUIREMENTS.—

5           (1) CONTINUING ELIGIBILITY.—An applicant  
6           that has received a grant under this section for a fis-  
7           cal year—

8           (A) may submit to the Secretary an appli-  
9           cation under this section for a subsequent fiscal  
10          year; but

11          (B) shall receive grants for an aggregate  
12          amount of not more than \$20,000,000 for the  
13          period of fiscal years 2008 through 2013.

14          (2) INFORMATION.—The Secretary shall ensure  
15          that nonproprietary information, test data, specifica-  
16          tions, and other information obtained by participants  
17          in the program under this section are—

18          (A) shared among participants in the pro-  
19          gram; and

20          (B) made available to other interested par-  
21          ties, including applicants of the program.

22          (3) CERTAIN APPLICANTS.—A battery manufac-  
23          turer that proposes to supply to an applicant for a  
24          grant under this section for use in a plug-in hybrid

1 vehicle a battery with a capacity of greater than 1  
2 kilowatt-hour shall—

3 (A) ensure that the applicant includes in  
4 the application a description of the price of the  
5 battery per kilowatt hour;

6 (B) on approval by the Secretary of the  
7 application, publish, or permit the Secretary to  
8 publish, the price described in subparagraph  
9 (A); and

10 (C) for any order received by the battery  
11 manufacturer for at least 1,000 batteries, offer  
12 the batteries at that price.

13 (g) AUTHORIZATION OF APPROPRIATIONS.—There is  
14 authorized to be appropriated to carry out this section  
15 \$60,000,000 for each of fiscal years 2008 through 2012,  
16 of which \$20,000,000 shall be available only for use in  
17 providing grants to local and municipal units of govern-  
18 ment.

○