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.

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.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the ''Harvesting Energy Act of 2007''.

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

TITLE I—ENERGY

SEC. 101. FEDERAL PROCUREMENT OF BIOBASED PRODUCTS.

Section 9002(k)(2)(A) of the Farm Security and Rural Investment Act of 2002 (7 U.S.C. 8102(k)(2)(A)) is amended by striking ''2007'' and inserting ''2012''.

SEC. 102. BIOREFINERY DEVELOPMENT GRANTS.

Section 9003(h) of the Farm Security and Rural Investment Act of 2002 (7 U.S.C. 8103(h)) is amended by striking ''2007'' and inserting ''2012''.

SEC. 103. BIODIESEL FUEL EDUCATION PROGRAM.

Section 9004(d) of the Farm Security and Rural Investment Act of 2002 (7 U.S.C. 8104(d)) is amended by striking ''2007'' and inserting ''2012''.

SEC. 104. ENERGY AUDIT AND RENEWABLE ENERGY DEVELOPMENT PROGRAM.

Section 9005(i) of the Farm Security and Rural Investment Act of 2002 (7 U.S.C. 8105(i)) is amended by striking ''2002 through 2007'' and inserting ''2008 through 2012''.

SEC. 105. RENEWABLE ENERGY SYSTEMS AND ENERGY EFFICIENCY IMPROVEMENTS.

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

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

amended by striking subsection (f) and inserting the following:

''(f) FUNDING.—Of the funds of the Commodity Credit Corporation, the Secretary shall make available to carry out this section $280,000,000 for each of fiscal years 2008 through 2012, of which not less than $30,000,000 shall be used to assist in the purchase of pyrolysis and thermochemical conversion systems described in subsection (a)(1).''.

SEC. 106. BIOMASS RESEARCH AND DEVELOPMENT.

(a) BIOMASS RESEARCH AND DEVELOPMENT INITIATIVE.—Section 307 of the Biomass Research and Development Act of 2000 (7 U.S.C. 8606) is amended—

(1) in subsection (d)(1)—

(A) in the matter preceding subparagraph (A), by inserting ''diversified'' after ''development of'';

(B) in subparagraph (A), by inserting ''(including native grasses and short-rotation trees)'' after ''dedicated crops''; and

(C) by striking subparagraph (C) and inserting the following:

''(C) the harvesting, handling, processing, transportation, and storage (including improvement of process technologies for the harvesting,

processing, and preparation components) of feedstocks, including agricultural, forest, and waste products; and'';

(2) in subsection (e)(3), by inserting '', and to identify best practices to maximize water efficiency'' after ''biobased products''; and

(3) in subsection (g)—

(A) in paragraph (2)—

(i) in the matter preceding subparagraph (A), by striking ''2010'' and inserting ''2012'';

(ii) in subparagraph (A), by striking ''20 percent'' and inserting ''15 percent''; and

(iii) in subparagraph (D), by striking ''5 percent'' and inserting ''10 percent''; and

(B) in paragraph (3), by striking ''2010'' and inserting ''2012''.

(b) FUNDING.—Section 310 of the Biomass Research and Development Act of 2000 (7 U.S.C. 8609) is amended—

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

''(2) $200,000,000 for each of fiscal years 2008 through 2012;''; and

(2) in subsection (b), by striking ''2015'' and inserting ''2012''.

SEC. 107. COOPERATIVE RESEARCH AND EXTENSION PROJECTS.

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

SEC. 108. CONTINUATION OF BIOENERGY PROGRAM.

(a) FEEDSTOCK RESIDUE MANAGEMENT PROGRAM.—Section 9010 of the Farm Security and Rural Investment Act of 2002 (7 U.S.C. 8108) is amended—

(1) in subsection (b), by striking ''subsection (c)'' each place it appears in paragraphs (4) and (6) and inserting ''subsection (e)'';

(2) by redesignating subsection (c) as subsection (e); and

(3) by inserting after subsection (b) the following:

''(c) FEEDSTOCK RESIDUE MANAGEMENT PROGRAM.—

''(1) IN GENERAL.—As part of the program carried out under this section, the Secretary shall establish a feedstock residue management program

under which the Secretary shall provide incentives to agricultural producers (including forest owners) to properly collect, store, and transport cellulosic feedstocks for biofuel production.

''(2) INCENTIVES.—In providing incentives under this subsection, the Secretary shall ensure, to the maximum extent practicable, that water quality, soil quality, wildlife habitat, and air quality are protected and enhanced.

''(d) TRANSITION ASSISTANCE PROGRAM.—

''(1) IN GENERAL.—As part of the program carried out under this section, the Secretary shall establish a transition assistance program for biomass energy feedstocks under which the Secretary shall provide funds to cellulosic biorefineries for use in making transition payments to agricultural producers, forest landowners, and ranchers for the conversion of land to energy crop production in preparation for bioenergy operations.

''(2) REQUIREMENTS.—In carrying out the program under this subsection, the Secretary shall—

''(A) require an agricultural producer, forest landowner, or rancher participating in the program to establish, on land of the agricultural producer, forest landowner, or rancher, 1

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

"(B) require that, with respect to a land conversion described in paragraph (1), an agricultural producer, forest landowner, or rancher shall ensure the protection and enhancement of soil quality and the prevention of soil erosion, nutrient leaching, and run off, particularly if the converted land is withdrawn from or otherwise was previously enrolled in the conservation reserve program established under subchapter B of chapter 1 of subtitle D of title XII of the Food Security Act of 1985 (16 U.S.C. 3831 et seq.) or other reserve program or is marginal, sensitive, or eroded land; and

"(C) provide to the agricultural producer, forest landowner, or rancher an annual payment during the period required to establish the crops on the land of the agricultural producer, forest landowner, or rancher.".

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

(1) in paragraph (1), by striking ''and'' at the end;

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

(3) by adding at the end the following:

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

''(4) $325,000,000 for each of fiscal years 2009 through 2012, of which—

''(A) there shall be used to carry out subsection (c) not less than—

''(i) $16,000,000 for fiscal year 2009;

''(ii) $32,000,000 for fiscal year 2010;

''(iii) $44,000,000 for fiscal year 2011; and

''(iv) $75,000,000 for fiscal year 2012; and

''(B) there shall be used to carry out subsection (d) not more than $150,000,000 for each fiscal year.''.

SEC. 109. RESEARCH, EXTENSION, AND EDUCATIONAL PROGRAMS ON BIOBASED TECHNOLOGIES AND PRODUCTS.

(a) DATABASE.—Section 9011(e)(2) of the Farm Security and Rural Investment Act of 2002 (7 U.S.C. 8109(e)(2)) is amended by adding at the end the following:

''(C) DATABASE.—To be eligible to receive a grant under this paragraph, not later than 1 year after the date of enactment of this subparagraph, each land-grant college or university that receives a grant shall make available to the public all information on biomass and other renewable energy resources, in a centralized, interactive database or wiki created and maintained by the Secretary.''.

(b) PRIORITIES.—Section 9011(f)(1) of the Farm Security and Rural Investment Act of 2002 (7 U.S.C. 8109(f)(1)) is amended by striking the period at the end and inserting '', including—

''(A) the development of regional-scale agronomic production systems for energy feedstocks;

''(B) regional-scale analysis of natural resource management and environmental impacts of residue removal;

''(C) development of economically useful biobased byproducts; and

''(D) the facilitation of economic diversification in rural communities.''.

(c) AUTHORIZATION OF APPROPRIATIONS.—Section 9011(j)(1)(C) of the Farm Security and Rural Investment Act of 2002 (7 U.S.C. 8109(j)(1)(C)) is amended by striking ''2010'' and inserting ''2015''.

SEC. 110. RESEARCH AND DEMONSTRATION GRANTS FOR BIOCHAR PRODUCTION SYSTEMS.

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

''SEC. 9012. RESEARCH AND DEMONSTRATION GRANTS FOR BIOCHAR PRODUCTION SYSTEMS.

''(a) DEFINITION OF BIOCHAR.—In this section, the term 'biochar' means charcoal or biomass-derived black carbon that is added to soil to improve soil fertility, nutrient retention, and carbon sequestration.

''(b) GRANTS.—The Secretary shall award competitive grants to eligible entities to assist in paying the cost of research and development to develop and commercialize biochar production systems on multiple scales (including on a single farm, local community, and cooperative scale), with a goal of creating production systems that maximize

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

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

''(d) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to carry out this section $10,000,000 for each of fiscal years 2008 through 2012.''.

SEC. 111. STRATEGIC BIOFUEL FEEDSTOCK RESERVE.

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

''SEC. 9013. STRATEGIC BIOFUEL FEEDSTOCK RESERVE.

''(a) DEFINITIONS.—In this section:

''(1) ELIGIBLE COMMODITY.—The term 'eligible commodity' means a biofuel feedstock that is produced in the United States.

''(2) FEEDSTOCK RESERVE.—The term 'feedstock reserve' means the sum of all eligible commodities stored by producers in accordance with subsection (b)(2).

''(3) PRODUCER.—The term 'producer' has the meaning given the term in section 1001.

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

''(1) purchase eligible commodities from producers; and

''(2) store the eligible commodities with the producers.

''(c) PURCHASES.—

''(1) IN GENERAL.—The Secretary shall purchase an eligible commodity at commercial rates in order to establish, maintain, or enhance the feedstock reserve in any case in which, as determined by the Secretary—

''(A) the eligible commodity is in abundant supply;

''(B) there is need for adequate carryover stocks to ensure a reliable supply of the eligible commodities to meet renewable energy demands;

''(C) the average price of the eligible commodity in a county is less than 100 percent of the applicable loan rate for a nonrecourse marketing assistance loan made available under subtitle B of title I; and

''(D) the purchase is necessary to ensure an adequate supply of a renewable fuel in the marketplace.

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

''(A) the type and quantity of an eligible commodity necessary to provide for not more than 1 year of estimated use for renewable energy purposes; and

''(B) quantities of an eligible commodity for research and development of renewable fuels.

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

''(1) the average market price of the eligible commodity in the United States is not less than the applicable loan rate for a nonrecourse marketing assistance loan made available under subtitle B of title I; and

''(2) the eligible commodity will be used to produce renewable energy.

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

''(f) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated such sums as are necessary to carry out this section for each of fiscal years 2008 through 2012.''.

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

SEC. 201. DIRECT PAYMENTS FOR VALUE-ADDED AND RENEWABLE ENERGY ENTERPRISES.

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

''SEC. 9014. DIRECT PAYMENTS FOR VALUE-ADDED AND RENEWABLE ENERGY ENTERPRISES.

''(a) DEFINITIONS.—In this section:

''(1) PRODUCER.—The term 'producer' has the meaning given the term in section 1001.

''(2) QUALIFIED VALUE-ADDED ENTERPRISE.—The term 'qualified value-added enterprise' means a value-added or renewable energy business enterprise that—

''(A)(i) adds value to an agricultural product (including ethanol, methanol, electrical power, biodiesel, wind, building materials, lubri-

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

"(ii) improves the production of an agricultural commodity through efficiency gains or environmental benefits;

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

"(C) is certified by the Secretary.

"(b) PROGRAM.—The Secretary shall carry out a program under which the Secretary shall provide direct payments to producers to match the equity investment of the producers in qualified value-added enterprises.

"(c) AMOUNT.—A direct payment described in subsection (b) shall not exceed $10,000.

"(d) USE OF FUNDS.—A producer may use funds received under this section only to invest in qualified value-added enterprises located in the same region as the producer.

"(e) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated such sums as are necessary to carry out this section for each of fiscal years 2008 through 2012.".

TITLE III—CONSERVATION

SEC. 301. CONSERVATION SECURITY PROGRAM.

(a) IN GENERAL.—Section 1238A(a) of the Food Security Act of 1985 (16 U.S.C. 3838a(a)) is amended by striking ''2011'' and inserting ''2012''.

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

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

''SEC. 1238D. BIOMASS FEEDSTOCK PILOT PROGRAM.

''(a) DEFINITIONS.—In this section:

''(1) BIOMASS.—

''(A) IN GENERAL.—In this section, the term 'biomass' means any biological matter that is available on a renewable or recurring basis.

''(B) INCLUSIONS.—The term 'biomass' includes—

''(i) agricultural crops and trees;

''(ii) wood and wood wastes and residues;

''(iii) plants (including aquatic plants);

''(iv) grasses;

''(v) residue;

''(vi) fibers; and

''(vii) animal waste, municipal waste, and other waste material.

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

''(b) PROGRAM.—The Secretary shall carry out a pilot program under which the Secretary shall offer to enter into conservation security contracts with eligible producers (including agricultural producers, ranchers, and forest landowners) in a local area that produce biomass feedstocks using methods that enhance soil, water, and air quality and conserve natural resources.''.

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

''SEC. 1238E. BIOCHAR DEMONSTRATION PROJECTS.

''(a) DEFINITION OF BIOCHAR.—In this section, the term 'biochar' means charcoal or biomass-derived black carbon that is added to soil to improve soil fertility, nutrient retention, and soil carbon sequestration.

''(b) DEMONSTRATION PROJECTS.—In carrying out the conservation security program under this subchapter, the Secretary shall carry out demonstration projects that demonstrate, on a farm-scale and local agricultural cooperative-scale, the advantages of using biochar production systems (including pyrolysis and thermocombustion systems) to improve renewable energy production and protect and enhance soil quality.

''(c) USE OF BIOCHAR TO GENERATE AGRICULTURAL CREDITS FOR CARBON TRADING.—

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

''(2) SOURCES OF GREENHOUSE GAS EMISSIONS REDUCTIONS.—In carrying out this subsection, the Secretary shall, to the maximum extent practicable, demonstrate that greenhouse gas emissions reductions can be achieved from—

''(A) fossil fuel displacement through on-farm production of bioenergy using a biochar production system;

"(B) the building of stable soil sinks, using biochar; and

"(C) reduced nitrous oxide emissions associated with—

"(i) the impact of biochar in soils; and

"(ii) reductions in nitrogen fertilizer requirements due to greater fertilizer efficiencies with biochar applications.

"(3) HIGH-PRIORITY RESEARCH AND DEMONSTRATION.—In carrying out this subsection, the Secretary shall, to the maximum extent practicable, promote high-priority research and demonstration by—

"(A) in the case of biochar production and commercialization—

"(i) producing a consistent, high-quality biochar product and an analysis of the properties, chemical structure, and performance of biochar in different soil types;

"(ii) optimizing coproduction of biochar and bioenergy; and

"(iii) scaling up of biochar production;

"(B) in the case of biochar behavior in the environment, analyzing—

''(i) biochar performance by soil type, feedstock, and production method; and

''(ii) application rates and effects in soils; and

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

''(i) the full production costs versus the economic benefits of biochar;

''(ii) the impact of biochar on greenhouse gas emissions, including the performance of biochar in carbon markets;

''(iii) the availability of feedstocks or competition of biochar with other biofuels;

''(iv) the impact of biomass removal on soil quality and erosion;

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

''(vi) the potential to reduce water pollution from feedlot runoff by capturing ammonia as a valuable addition to agricultural charcoal.

''(d) FUNDING.—Of the funds that are made available to carry out this subchapter, the Secretary shall use

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

SEC. 302. ENVIRONMENTAL QUALITY INCENTIVES PROGRAM.

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

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

(1) by striking ''For each of fiscal years 2002 through 2007'' and inserting the following:

''(1) LIVESTOCK PRODUCTION.—For each of fiscal years 2002 through 2012''; and

(2) by adding at the end the following:

''(2) BIOENERGY PRODUCTS.—For each of fiscal years 2008 through 2012, the Secretary may use funds made available to carry out this chapter to facilitate practices relating to the production of bioenergy products, including by assisting producers—

''(A) to install biodigesters, biogasifiers, or biochar production units;

''(B) to conserve water;

''(C) to control erosion;

''(D) to improve wildlife habitat; and

''(E) to enhance soil quality.''.

(c) GROUND AND SURFACE WATER CONSERVATION.—Section 1240I(c)(1)(C)) of the Food Security Act of 1985 (16 U.S.C. 3839aa–9(c)(1)(C)) is amended by striking ''2007'' and inserting ''2012''.

SEC. 303. FUNDING AND ADMINISTRATION.

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

TITLE IV—CLEAN ENERGY PRACTICES

SEC. 401. FLEXIBLE FUEL VEHICLES.

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

''SEC. 9015. FLEXIBLE FUEL VEHICLES.

''(a) DEFINITIONS.—In this section:

''(1) FLEXIBLE FUEL VEHICLE.—The term 'flexible fuel vehicle' means—

''(A) a GEM flex fuel vehicle; and

''(B) a vehicle warranted by the manufacturer of the vehicle to operate on biodiesel.

''(2) GEM FLEX FUEL VEHICLE.—

''(A) IN GENERAL.—The term 'GEM flex fuel vehicle' means a motor vehicle warranted

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

''(B) RELATED DEFINITIONS.—In subparagraph (A):

''(i) E85.—The term 'E85' means a fuel blend containing 85 percent ethanol and 15 percent gasoline, by volume.

''(ii) M85.—The term 'M85' means a fuel blend containing 85 percent methanol and 15 percent gasoline, by volume.

''(b) USE OF FLEXIBLE FUEL VEHICLES.—Beginning not later than 180 days after the date of enactment of this section, the Secretary shall ensure that all vehicles purchased or leased by the Department of Agriculture are flexible fuel vehicles that, to the maximum extent practicable, use biobased fuels.''.

TITLE V—RESEARCH, DEVELOPMENT, AND EDUCATION

SEC. 501. HIGH-PRIORITY RESEARCH AND EXTENSION INITIATIVES.

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

''(46) BIOCHAR RESEARCH.—Research grants may be made under this section to promote—

''(A) biochar technology for adding charcoal or biomass-derived black carbon to soil to improve soil fertility, nutrient retention, and carbon sequestration; and

''(B) the movement of the technology from a pre-commercial to a fully-commercialized state.''.

(b) FUNDING.—Section 1672(h) of the Food, Agriculture, Conservation, and Trade Act of 1990 (7 U.S.C. 5925(h)) is amended by striking ''1999 through 2007'' and inserting ''2008 through 2012, of which not less $20,000,000 shall be used each fiscal year to make grants described in subsection (e)(46)''.

SEC. 502. RESEARCH AND DEVELOPMENT.

Title IX of the Farm Security and Rural Investment Act of 2002 (7 U.S.C. 8101 et seq.) (as amended by section 401) is amended by adding at the end the following:

''SEC. 9016. RESEARCH AND DEVELOPMENT OF RENEWABLE ENERGY.

''(a) IN GENERAL.—The Secretary, in conjunction with the Colorado Renewable Energy Collaboratory, shall carry out a research and development program relating to renewable energy—

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

''(A) have high energy production values;

''(B) are cost efficient for producers and refiners;

''(C) are well suited to high yields with minimal inputs in arid and semiarid regions; and

''(D) are regionally appropriate;

''(2) to conduct research on and develop biorefining and biofuels through multidisciplinary research, including research relating to—

''(A) biochemical engineering;

''(B) process engineering;

''(C) thermochemical engineering;

''(D) product engineering; and

''(E) systems engineering;

''(3) to develop cost-effective methods for the harvesting, handling, transport, and storage of cellulosic biomass feedstocks;

''(4) to conduct research on and develop fertilizers from biobased sources other than hydrocarbon fuels;

''(5) to develop energy- and water-efficient irrigation systems;

''(6) to research and develop water-efficient biofuel production technologies;

''(7) to research and develop additional biobased products;

''(8) in cooperation with the Department of Energy and the Department of Defense, to develop storage technologies for wind- and solar-generated power for small-scale and utility-scale generation facilities; and

''(9) in cooperation with the Department of Energy, to research fuel cell technologies for use in farm, ranch, and rural applications.

''(b) FUNDING.—

''(1) MANDATORY FUNDS.—

''(A) TRANSFER.—In addition to any other funds made available under paragraph (2), beginning on October 1, 2007, and on each October 1 thereafter through October 1, 2011, out of any funds in the Treasury not otherwise appropriated, the Secretary of the Treasury shall transfer to the Secretary, $5,000,000 to carry out this section, to remain available until expended.

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

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

''(2) AUTHORIZATION OF APPROPRIATIONS.—In addition to any other funds made available under paragraph (1), there are authorized to be appropriated—

''(A) $110,000,000 to the Under Secretary for Research, Education, and Economics, acting through the Agricultural Research Service, for cellulosic biofuel research for each of fiscal years 2008 through 2012;

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

''(C) such sums as are necessary to carry out this section.''.

SEC. 503. RENEWABLE ENERGY RESEARCH, EDUCATION, AND EDUCATIONAL PROGRAM.

Title IX of the Farm Security and Rural Investment Act of 2002 (7 U.S.C. 8101 et seq.) (as amended by section 502(a)) is amended by adding at the end the following:

"SEC. 9017. RENEWABLE ENERGY RESEARCH, EDUCATION, AND EDUCATIONAL PROGRAM.

''(a) IN GENERAL.—The Secretary, in cooperation with the Administrator of the Environmental Protection Agency and the Secretary of Energy, shall establish a program under which the Secretary shall—

''(1) establish a standardized protocol for market-based trading of greenhouse gas emissions reductions from soil carbon sequestration, based on existing technologies to measure, monitor, and verify soil carbon sequestration and increases in soil carbon stocks associated with agricultural management practices;

''(2) revise the standardized protocols established under paragraph (1) as necessary and as technological advancements warrant, to ensure full market participation and remuneration for those credits in market-based greenhouse gas emissions reduction programs;

''(3) provide information to agricultural producers concerning the economic (including market-based sale and trading opportunities) and environmental benefits of conservation and management practices that increase soil carbon sequestration; and

''(4) provide grants to—

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

''(i) to develop renewable energy and value-added curricula that provide training for individuals pursuing careers in the renewable energy field (including individuals majoring in renewable energy engineering);

''(ii) to provide extension services relating to renewable energy; and

''(iii) to encourage cellulosic biofuel research; and

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

''(b) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated such sums as are necessary to carry out this section.''.

SEC. 504. RENEWABLE ELECTRICITY AND RENEWABLE FUELS RESEARCH AND DEVELOPMENT.

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

"SEC. 9018. RENEWABLE ELECTRICITY AND RENEWABLE FUELS RESEARCH AND DEVELOPMENT.

"(a) JOINT RESEARCH WITH THE DEPARTMENT OF ENERGY.—

"(1) NATIONAL GOAL.—It is a goal of the United States that by calendar year 2025, the costs of producing electricity in the United States from renewable resources shall be reduced by at least 45 percent from the cost of producing electricity from renewable resources as of the date of enactment of this section.

"(2) STUDY.—The Secretary and the Secretary of Energy (referred to in this subsection as the 'Secretaries') shall jointly carry out a study that—

"(A) identifies research, development, demonstration, and deployment steps necessary to achieve the national goal described in paragraph (1);

"(B) comprehensively examines the infrastructure needs of the renewable fuels sector, including a study of biofuel pipeline needs and feasibility;

"(C) assesses the water requirements necessary to produce and process biobased and renewable energy feedstocks from agricultural production, forestry, and waste;

''(D) determines whether adequate water resources are projected to be available to meet—

''(i) the requirements described in subparagraph (C); and

''(ii) current and projected drinking water, sanitation, and ecosystem needs;

''(E) identifies best practices to maximize water efficiency; and

''(F) quantifies and verifies the carbon sequestration benefits of various bioenergy and agricultural crops and practices, including the development of models to estimate the carbon sequestration benefits for different crops on different soils.

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

''(A) the progress of the Secretaries in meeting the national goal described in paragraph (1);

''(B) any recommendations of the Secretaries to ensure that the national goal is met; and

''(C) the results of the study carried out under paragraph (2), including recommendations—

''(i) to ensure delivery of adequate renewable fuels and feedstocks to the market; and

''(ii) to ensure the availability of adequate water resources.

''(b) ADDITIONAL RESEARCH AND DEVELOPMENT.—The Secretary shall carry out a research and development program under which the Secretary shall study—

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

''(2) methods to sustainably increase agricultural and forestry crop energy yields while enhancing environmental benefits, in particular improving soil quality and air quality;

''(3) methods of developing small-scale and distributed renewable energy technologies;

''(4) biochar, animal agriculture residues, and other potential non-fossil-fuel-based, renewable fertilizers to integrate energy production or agricultural management practices with enhanced soil quality and long-term carbon sequestration;

''(5) the development of efficient and environmentally-sensitive harvesting equipment, including as 1-pass equipment, for agricultural production and forestry;

''(6) the use of algae for the production of biodiesel and other biobased fuels and energy;

''(7) the use of biotechnology, under acceptable protocols, to develop and deploy high-yielding or easily-fermentable biomass energy feedstocks or syngas derived from biomass energy feedstocks; and

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

''(c) SAFETY PROTOCOLS.—The Secretary shall carry out a program under which the Secretary provides coordination, outreach, and technical assistance to develop protocols for—

''(1) the safe introduction of new biomass energy feedstocks, including by allowing crop testing to determine local compatibility while protecting existing agriculture and habitats;

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

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

''(d) FUNDING.—

''(1) IN GENERAL.—On October 1, 2007, and on each October 1 thereafter through October 1, 2011, out of any funds in the Treasury not otherwise appropriated, the Secretary of the Treasury shall transfer to the Secretary—

''(A) $120,000,000 to carry out subsection (a);

''(B) $120,000,000 to carry out subsection (b); and

''(C) $60,000,000 to carry out subsection (c).

''(2) RECEIPT AND ACCEPTANCE.—The Secretary shall be entitled to receive, shall accept, and shall use to carry out this section the funds transferred under paragraph (1), without further appropriation.

''(3) AVAILABILITY OF FUNDS.—Funds transferred under paragraph (1) shall remain available until expended.''.

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

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

(a) DEFINITIONS.—In this section:

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

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

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

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

(2) SECRETARY.—The term ''Secretary'' means the Secretary of Agriculture.

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

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

(1) vehicle and component performance, including performance of the battery, energy management, and charging systems, under various driving speeds, trip ranges, traffic, and other driving conditions;

(2) vehicle and component costs, including acquisition, operating, and maintenance costs;

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

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

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

(e) SELECTION CRITERIA.—

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

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

(B) give priority to applicants that—

(i) demonstrate a path to commercialization for the vehicles demonstrated; and

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

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

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

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

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

(i) farm equipment applications;

(ii) rural school bus applications;

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

(iv) fleet applications in rural areas;

(D) demonstrate vehicles from original equipment manufacturers, Tier I suppliers, or other entities capable of achieving commercialization of the technology; and

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

(f) OTHER REQUIREMENTS.—

(1) CONTINUING ELIGIBILITY.—An applicant that has received a grant under this section for a fiscal year—

(A) may submit to the Secretary an application under this section for a subsequent fiscal year; but

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

(2) INFORMATION.—The Secretary shall ensure that nonproprietary information, test data, specifications, and other information obtained by participants in the program under this section are—

(A) shared among participants in the program; and

(B) made available to other interested parties, including applicants of the program.

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

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

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

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

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

(g) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to carry out this section $60,000,000 for each of fiscal years 2008 through 2012, of which $20,000,000 shall be available only for use in providing grants to local and municipal units of government.

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