

1 Title: To strengthen energy security by promoting low-carbon fuels, and for other purposes.
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4 Be it enacted by the Senate and House of Representatives of the United States of America in
5 Congress assembled,

6 **SECTION 1. SHORT TITLE.**

7 This Act may be cited as the “National Low-Carbon Fuels and Energy Security Act of 2009”.

8 **SEC. 2. LOW-CARBON FUEL STANDARD.**

9 (a) In General.—Part A of title II of the Clean Air Act (42 U.S.C. 7401 et seq.) is amended by
10 adding at the end the following:

11 **“SEC. 220. LOW-CARBON FUEL STANDARD.**

12 **“(a) Definitions.—In this section:**

13 **“(1) IN GENERAL.—**Except as otherwise provided in this subsection, all definitions
14 contained in any provision of this title shall apply in this section.

15 **“(2) OTHER DEFINITIONS.—**

16 **“(A) FUEL EMISSION BASELINE.—**The term ‘fuel emission baseline’ means the
17 average lifecycle greenhouse gas emissions per unit of energy, as determined by the
18 Administrator, of all transportation fuels sold or introduced into commerce in any State
19 during calendar year 2005.

20 **“(B) RENEWABLE BIOMASS.—**The term ‘renewable biomass’ has the meaning given
21 the term in section 9001 of the Food, Conservation, and Energy Act of 2009 (7 U.S.C.
22 8101).

23 **“(C) STATE.—**The term ‘State’ means any of the 50 States or the District of
24 Columbia.

25 **“(D) TRANSPORTATION FUEL.—**The term ‘transportation fuel’ means fuel for use
26 in—

27 **“(i) motor vehicles and motor vehicle engines;**

28 **“(ii) nonroad vehicles and nonroad engines;**

29 **“(iii) aircraft; and**

30 **“(iv) at the discretion of the Administrator, ocean-going vessels.**

31 **“(E) TRANSPORTATION FUEL PROVIDER.—**The term ‘transportation fuel provider’
32 includes any individual or entity that produces, refines, blends, or imports any
33 transportation fuel.

34 **“(b) Regulations.—**

35 **“(1) IN GENERAL.—**Not later than 3 years after the date of enactment of this section, the
36 Administrator shall promulgate regulations in accordance with section 211(c) and this

1 section that—

2 “(A) determine the lifecycle greenhouse gas emissions of all transportation fuels;

3 “(B) determine the fuel emission baseline;

4 “(C) apply to refineries, blenders, and importers, as appropriate, and to such other

5 transportation fuel providers as are determined by the Administrator;

6 “(D) provide opt-in procedures under which a supplier of gaseous transportation

7 fuels, at the option of the supplier, may be included in the average emission

8 calculations and earn credits under this section;

9 “(E) ensure that, for each of calendar years 2014 through 2022, the annual average

10 lifecycle greenhouse gas emissions, per unit of energy as determined by the

11 Administrator, of transportation fuel does not exceed the fuel emission baseline;

12 “(F) provide for, in accordance with subsection (c)—

13 “(i) the generation of credits for electricity used as a transportation fuel and

14 generated by a source other than a vehicle; and

15 “(ii) the assignment of those credits to—

16 “(I) manufacturers or importers of those vehicles;

17 “(II) owners or providers of recharge stations specifically designed to

18 recharge those vehicles; or

19 “(III) such other persons as the Administrator determines to be

20 appropriate; and

21 “(G) ensure that, for calendar year 2023 and each calendar year thereafter, the

22 transportation fuel providers reduce the annual average lifecycle greenhouse gas

23 emissions per unit of energy, as determined by the Administrator, for transportation

24 fuel—

25 “(i) that is sold or introduced into commerce in any State, to the maximum

26 extent practicable, taking into consideration cost, energy, and other environmental

27 factors; and

28 “(ii) for which—

29 “(I) for each of calendar years 2023 through 2029, the annual average

30 lifecycle greenhouse gas emissions are at least ~~10~~ percent below the fuel

31 emission baseline; and

32 “(II) for calendar year 2030 and each subsequent calendar year, the annual

33 average lifecycle greenhouse gas emissions are at least ~~20~~ percent below

34 the fuel emission baseline.

35 “(2) REVIEW.—Beginning in calendar year 2020, and at least every 5 years thereafter, the

36 Administrator shall review and revise, as appropriate, the annual average lifecycle

37 greenhouse gas emission requirements of the regulations promulgated under this subsection.

38 “(3) REQUIRED PROVISIONS.—The regulations promulgated under this subsection shall—

1 “(A) contain compliance provisions applicable to transportation fuel providers and
2 other persons, as appropriate, to ensure that the requirements of this subsection are
3 met;

4 “(B) not impose any per-gallon obligation regarding the quantity of lifecycle
5 greenhouse gas emissions per unit of energy, as determined by the Administrator; and

6 “(C) establish the lifecycle greenhouse gas emissions of biofuels derived from
7 biomass other than renewable biomass at a level that does not exceed the fuel emission
8 baseline.

9 “(4) CARBON INTENSITY.—

10 “(A) IN GENERAL.—Subject to paragraph (2), in promulgating regulations under this
11 subsection, the Administrator shall provide fully documented initial best-guess
12 estimates of the lifecycle carbon intensity of the following fuel-technology
13 combinations, based on the best technical information and projections available as of
14 the date of enactment of this section:

15 “(i) Methanol produced from natural gas by the best state-of-the-art Fischer
16 Tropsch facilities.

17 “(ii) Methanol, butanol, and hydrocarbon fuel produced from natural gas by
18 direct catalytic technology.

19 “(iii) Liquid fuels produced from coal by the full-cycle Schobert process,
20 including the process for obtaining hydrogen as a process intermediary.

21 “(iv) Methanol and low-cost mixed alcohols produced by gasification or
22 thermopyrolysis of lignocellulosic biomass or coal.

23 “(v) Electricity, adjusted to reflect the greatest number of miles per unit of
24 energy when the electricity used as fuel is electricity from the grid or from
25 carbon-free renewable sources.

26 “(vi) Such other low-carbon fuels as may be suggested to the Administrator by
27 the Secretary of Energy by not later than June 2010, if the Administrator
28 determines that it is practicable to include the fuels under this paragraph without
29 delaying the promulgation of regulations under this subsection.

30 “(B) LIFECYCLE GREENHOUSE GAS EMISSION ASSESSMENTS.—

31 “(i) IN GENERAL.—The lifecycle greenhouse gas emissions of a new or existing
32 producer using any fuel-technology combination described in subparagraph (A)
33 shall be considered to equal the best-guess estimate of the Administrator for the
34 fuel-technology combination under subparagraph (A).

35 “(ii) MARKET SHARE.—As soon as practicable after the date on which any fuel-
36 technology combination described in this subsection is first used in 1 percent or
37 more of the motor vehicles sold in the United States during a calendar year, the
38 Administrator shall reassess the lifecycle greenhouse gas emissions of the fuel-
39 technology combination.

40 “(iii) PRODUCTION FACILITIES.—Any production facility that is in operation, or

1 that is fully designed and construction of which is at least 50 percent complete, as
2 of the date on which the Administrator provides any reassessment of the lifecycle
3 greenhouse gas emissions of the production facility, may opt to permanently be
4 regulated under the initial assessment of the Administrator for the production
5 facility, if that assessment is more favorable than the revised assessment.

6 “(iv) CORN STOVER.—In preparing any lifecycle gas emission assessment for
7 corn stover, the Administrator—

8 “(I) shall account for changes in the net carbon stored in the soil,
9 compared with the usual practices in handling corn stover, as determined by
10 the Secretary of Agriculture; and

11 “(II) may use different numbers provided by the Secretary of Agriculture
12 for agricultural producers that are and are not enrolled in environmental
13 programs of the Department of Agriculture, if—

14 “(aa) the Secretary provides those numbers; and

15 “(bb) the Administrator determines that it is feasible to use the
16 numbers.

17 “(C) APPEALS.—Notwithstanding any other provision of this paragraph, the right to
18 appeal a lifecycle greenhouse gas assessment of the Administrator under subtitle A of
19 title II of the Energy Independence and Security Act of 2007 (Public Law 110–140;
20 121 Stat. 1519) or any amendment made by that subtitle shall remain in effect.

21 “(5) ELECTION TO PARTICIPATE.—

22 “(A) PARTICIPATION.—For any transportation fuel provider that the Administrator
23 has not yet determined to be subject to the regulations promulgated under this
24 subsection, and for any provider of a fuel that is not a transportation fuel, the
25 Administrator may allow the fuel provider to elect to participate in the program under
26 this subsection, subject to requirements established under those regulations.

27 “(B) REGULATORY PROVISIONS.—Regulations implementing this paragraph shall
28 include—

29 “(i) provisions for tracking of the fuel used for transportation purposes
30 separately from fuel used for other purposes; and

31 “(ii) any other provisions determined to be appropriate by the Administrator to
32 carry out this paragraph.

33 “(c) Credits.—

34 “(1) IN GENERAL.—The regulations promulgated under subsection (b) shall permit
35 transportation fuel providers to generate credits for achieving, during a calendar year,
36 greater reductions for the fuel produced or imported by the fuel provider than are required
37 under the regulations.

38 “(2) ADMINISTRATIVE DETERMINATIONS.—The Administrator shall—

39 “(A) determine the appropriate quantity of credits that may be generated under
40 paragraph (1);

1 “(B) establish appropriate conditions on the duration, trading, and use of those
2 credits; and

3 “(C) in accordance with those or other appropriate conditions, allow the use of
4 credits or renewable identification numbers generated under section 211(o).

5 “(3) COMPLIANCE.—Each transportation fuel provider subject to the regulations
6 promulgated under subsection (b) shall demonstrate compliance with this section, including,
7 as necessary, through the use of credits generated, banked, or purchased.

8 “(4) INABILITY TO GENERATE OR PURCHASE SUFFICIENT CREDITS.—A transportation fuel
9 provider that is unable to generate or purchase sufficient credits to meet the requirements of
10 the regulations promulgated under subsection (b) may—

11 “(A) carry the compliance deficit forward, subject to the condition that the fuel
12 provider, for the calendar year following the year for which the deficit is created—

13 “(i) achieves compliance; and

14 “(ii) generates or purchases additional credits to offset the deficit from the
15 preceding calendar year; or

16 “(B) purchase credits from the Administrator at a price of \$4 per gallon of gasoline
17 equivalent, as indexed for United States dollar inflation from the January 1, 2007 (as
18 measured by the Consumer Price Index).

19 “(d) Waivers.—The Administrator, in consultation with the Secretary of Agriculture and the
20 Secretary of Energy, may waive the requirements of the regulations promulgated under
21 subsection (b) in whole or in part on petition by 1 or more States, by any person subject to the
22 requirements of this section, or by the Administrator on the motion of the Administrator, by
23 revising the average lifecycle greenhouse gas emission reduction required under the regulations,
24 based on a determination by the Administrator after public notice and opportunity for comment,
25 that—

26 “(1) implementation of the requirement would severely harm the economy or
27 environment of a State, a region, or the United States; or

28 “(2) there is an inadequate domestic supply of fuels to meet the requirements of this
29 section.

30 “(e) Environmental and Resource Conservation Impacts.—Not later than 2 years after the date
31 of promulgation of regulations under subsection (b), the Administrator shall complete and submit
32 to Congress a study to determine the environmental and resource conservation impacts of the
33 requirements of the regulations, including impacts on air and water quality.

34 “(f) Energy Security and Leakage.—Not later than 18 months after date of promulgation of
35 regulations under subsection (b), the Administrator shall complete and submit to Congress a
36 study—

37 “(1) to determine the effect of the requirements of the regulations on energy security; and

38 “(2)(A) to assess the potential shifting of fuel feedstocks and fuel products internationally
39 as a result of the requirements; and

40 “(B) to determine the environmental and energy security implications of that shifting.

1 “(g) Transition.—Section 211(o) shall not apply to fuel sold or introduced into commerce after
2 December 31, 2022, except that the definitions contained in section 211(o) shall continue to
3 apply to this section, unless otherwise provided, after that date.”.

4 (b) Lifecycle Greenhouse Gas Calculations.—

5 (1) DEFINITIONS.—In this subsection:

6 (A) ADMINISTRATOR.—The term “Administrator” means the Administrator of the
7 Environmental Protection Agency.

8 (B) FLUE GAS.—The term “flue gas” means a stream of waste gas produced
9 primarily as a byproduct of combustion in a boiler, furnace, or thermodynamic heat
10 engine.

11 (2) BASIS.—The Administrator shall ensure, to the maximum extent practicable, that
12 lifecycle greenhouse gas calculations required under this Act, section 220 of the Clean Air
13 Act (as added by subsection (a)), and section 211(o) of the Clean Air Act (42 U.S.C.
14 7545(o)) are based on the same methodology, including the principles described in
15 paragraphs (3) through (5).

16 (3) FOSSIL SOURCES OF OIL AND GAS.—In the case of fossil sources of oil and natural gas
17 (such as crude oil produced from oil shale or imported crude oil from tar sands), the
18 lifecycle greenhouse gas emissions of the oil or natural gas shall equal the emissions
19 produced when the oil or natural gas is burned.

20 (4) FUEL PRODUCED FROM CARBON DIOXIDE.—Any technology-fuel combination in which
21 carbon atoms are derived primarily from the carbon dioxide in flue gas or from the
22 atmosphere shall—

23 (A) be treated initially as a zero-carbon sources of fuel; ~~and~~

24 (B) qualify as advanced biofuel, regardless of whether the technology is biological;

25 (C) considered as displacing an equal amount of fossil oil, in all later reassessments
26 of life-cycle greenhouse emissions. -

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27 (5) TECHNOLOGIES BASED ON ETHANOL TECHNOLOGY.—

28 (A) IN GENERAL.—Any technology-fuel combination used to produce liquid fuel that
29 has not been separately assessed under section 220(b)(4)(B) of the Clean Air Act (as
30 added by subsection (a)) shall be treated as having the same carbon intensity as the
31 corresponding technology used to produce ethanol, if that technology may be used to
32 produce ethanol and has been assessed under that section.

33 (B) BUTANOL.—A technology used to produce butanol as a retrofit to a facility that
34 produces ethanol shall automatically be treated as having the same carbon intensity as
35 a corresponding technology, as described in subparagraph (A).

36 **SEC. 3. PRICE SUPPORTS FOR NEW SECURE DOMESTIC**
37 **FUELS.**

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

1 “SEC. 9014. PRICE SUPPORTS FOR NEW SECURE
2 DOMESTIC FUELS.

3 “(a) In General.—Not later than 2 years after the date of enactment of this section, the
4 Secretary shall promulgate regulations to establish a guaranteed price support program for oil
5 produced from coal, and advanced biofuels, produced in the United States.

6 “(b) Requirements.—Subject to subsection (c), the rate of price support under the program
7 shall be—

8 “(1) \$75 per barrel of oil equivalent for oil or other liquid transportation fuel produced
9 from coal; and

10 “(2) \$100 for a quantity of advanced biofuel with the energy content of a barrel of oil,
11 regardless of whether the advanced biofuel is liquid or gaseous or biological or
12 nonbiological; however, this price support will not apply to ethanol whose producer has
13 electd to take the ethanol tax credit in the same tax year.-

14 “(c) Adjustment.—The Secretary shall adjust each year the rates of price support described in
15 subsection (b) to account for United States dollar inflation from the date of enactment of this
16 section (as measured by the Consumer Price Index).

17 “(d) Funding.—Of the funds of the Commodity Credit Corporation, the Secretary shall use to
18 carry out this section such sums as are necessary for fiscal year 2010 and each fiscal year
19 thereafter.”

20 SEC. 4. ENERGY RESEARCH AND DEVELOPMENT.

21 (a) Findings.—Congress finds that—

22 (1) there are numerous near-term but risky opportunities for breakthroughs in advanced
23 vehicles and fuel production that are not fully funded but that if fully funded could
24 substantially accelerate meeting the purposes of this Act;

25 (2) Congress has provided an authorization and appropriations for the ARPA-E, a new
26 organization within the Department of Energy that was established to provide better support
27 for high-risk, focused research that is more basic and unfettered than the usual mission-
28 oriented research and yet more focused than the normal research conducted by the National
29 Science Foundation;

30 (3) very broad announcements from ARPA-E, and regulations of the Department of
31 Energy regarding cost sharing and procurement, have not aggressively addressed key
32 opportunities for breakthroughs in advanced vehicles and fuel production; and

33 (4) this section will partially overcome the problems described in this subsection and
34 promote breakthroughs in advanced vehicles and fuel production.

35 (b) Definitions.—In this section:

36 (1) ARPA-E.—The term “ARPA-E” means the Advanced Research Projects Agency—
37 Energy established by section 5012(b) of the America COMPETES Act (42 U.S.C.
38 16538(b)).

1 (2) INSTITUTION OF HIGHER EDUCATION.—The term “institution of higher education” has
2 the meaning given the term in section 101 of the Higher Education Act of 1965 (20 U.S.C.
3 1001).

4 (3) JOINT PROGRAM.—The term “joint program” means a joint program established under
5 subsection (c).

6 (4) JTEC.—The term “JTEC” means the Johnson Thermoelectric Energy Conversion, a
7 general type of system for converting heat differences into electric energy based on the
8 Ericsson thermodynamic cycle and the use of membrane-electrode assemblies.

9 (5) SELECTION TEAM.—The term “selection team” means a team of experts established
10 under subsection (e)(4) to select joint programs and grant recipients.

11 (c) Memorandum of Understanding.—

12 (1) IN GENERAL.—Not later than December 31, 2010, the Secretary of Energy, the
13 Director of ARPA-E, and the Director of the National Science Foundation shall enter into a
14 memorandum of understanding to establish joint programs under which grants are provided
15 to eligible entities to conduct research on and development of advanced vehicles and fuel
16 production.

17 (2) OTHER AGENCIES.—In carrying out paragraph (1), the Secretary of Energy, the
18 Director of ARPA-E, and the Director of the National Science Foundation may include in
19 the memorandum of understanding entered into under that paragraph any other Federal
20 agencies that—

21 (A) provide commitments to supply additional funding; and

22 (B) the Secretary of Energy, the Director of ARPA-E, and the Director of the
23 National Science Foundation determine to be appropriate.

24 (d) Eligibility.—To be eligible to receive a grant under this section, a participant shall be an
25 institution of higher education, a small business, or nonprofit corporation in the United States, as
26 provided for in the Grant Proposal Guide of the National Science Foundation.

27 (e) Selection of ~~Joint Programs and Grants~~ Recipients.—

28 (1) IN GENERAL.—Subject to paragraphs (2) through (7), ~~joint programs and grants~~
29 ~~recipients~~ shall be selected from eligible proposals on a competitive basis using merit
30 review.

31 (2) PROCESS.—The electronic proposal submission and review process of the National
32 Science Foundation shall be used to manage the selection and review of proposals for joint
33 programs and grants.

34 (3) EXCLUSION.—A proposal for a joint program or grant may be excluded if a
35 preproposal for the proposal does not pass merit review.

36 (4) TEAMS OF TECHNICAL EXPERTS.—Teams of technical experts at ARPA-E, the National
37 Science Foundation, and, if applicable, any other participating Federal agencies shall be
38 used to select joint programs and grant recipients, after completion of merit review under
39 this subsection, in accordance with the memorandum of understanding.

40 (5) ANNOUNCEMENT; ANNUAL SOLICITATIONS.—Each joint program shall be—

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1 (A) widely announced through the system of the National Science Foundation; and

2 (B) open to new competitive proposals at least once per year.

3 (6) SEEDLING GRANTS.—In making grants under this section, selection teams shall be
4 authorized to fund a limited number of ~~consider providing~~ small seedling grants which did
5 not receive external review.

6 (7) FUTURE TECHNOLOGY COSTS.—To be eligible for selection under this section, a
7 proposal for a ~~joint program or~~ grant shall include a strategy for considering future
8 technology costs.

9 (f) Continuing Joint Programs.—

10 (1) IN GENERAL.—In addition to any other joint programs that are agreed to in accordance
11 with the memorandum of understanding, the memorandum of understanding shall provide
12 for the establishment of at least 3 continuing joint programs described in paragraphs (2), (3),
13 and (4) that are each funded, from funds available to ARPA-E, in an amount equal to at
14 least \$20,000,000 for fiscal year 2010 and each subsequent fiscal year, as indexed for
15 United States dollar inflation from the date of enactment of this Act (as measured by the
16 Consumer Price Index).

17 (2) BREAKTHROUGH BATTERY RESEARCH.—

18 (A) IN GENERAL.—A continuing joint program shall be established under which
19 grants shall be provided to eligible entities to conduct research—

20 (i) to ~~promote~~ maximize the probability of the the development, during the 10
21 year-period beginning on the date of ~~award of said grant~~enactment of this Act, of
22 a prototype for a new battery design that—

23 (I) is suitable for use in plug-in hybrid cars, taking into account energy,
24 power density, and other parameters essential to the automobile industry; and

25 (II) would reduce the cost of such batteries to $\frac{1}{2}$ or less of the most
26 current cost of such batteries on the open commercial market if the batteries
27 are mass-produced; or

28 (ii) to extend the life, or reduce the probability of hazardous failure, of batteries
29 described in clause (i).

30 (B) PROPOSAL SELECTION.—In selecting grant proposals under this paragraph, a
31 selection team shall select the proposals that collectively maximize the probability of
32 meeting the criteria described in subparagraph (A) using funds made available under
33 paragraph (1). Special consideration shall be given to transformative research and to
34 research which enables a complete exploration of the design space of possible
35 chemistries and configurations, as is logically implied by the criterion in paragraph
36 (A). Reviewers and selection committees shall be reminded that conservative
37 incremental research usually has a low probability of creating the desired degree of
38 breakthrough, and that these criteria allow for consider both of direct and indirect
39 consequences of funding the proposal.

40 (C) DURATION.—The joint program established under this paragraph shall continue
41 until the earlier of—

1 (i) the date on which prototypes have been developed that reduce costs per
2 kilowatt hour by a factor of 10, as compared with those costs as of the date of
3 enactment of this Act; or

4 (ii) the date on which there is a reasonable consensus that—

5 (I) all avenues towards the goal described in clause (i) have been explored;
6 and

7 (II) there is a small probability that new basic designs will offer even a 30-
8 percent reduction in cost.

9 (3) BREAKTHROUGH RESEARCH IN POWERPLANTS FOR CARS.—

10 (A) IN GENERAL.—A continuing joint program shall be established under which
11 grants shall be provided to eligible entities to conduct research to promote the
12 development, during the 10-year period beginning on the date of enactment of this Act,
13 of a prototype for a new fuel-flexible system design for use in converting fuels to
14 electricity that—

15 (i) is suitable for use on an on-board plug-in hybrid vehicle;

16 (ii) would achieve whole system efficiency gains of 50 percent or more after
17 the system is mass-produced; and

18 (iii) is able to use standard hydrocarbon fuel or alternate fuel.

19 (B) PROPOSAL SELECTION.—In selecting grant proposals under this paragraph, a
20 selection team shall select the proposals that collectively maximize the probability of
21 meeting the criteria described in subparagraph (A) using funds made available under
22 paragraph (1).

23 (C) DURATION.—The joint program established under this paragraph shall continue
24 until the date on which prototypes described in subparagraph (A) have been developed
25 or proven near-impossible for—

26 (i) solid oxide fuel cells suitable for cars, advanced Stirling engines, the JTEC
27 system, and the JTEC-enhanced system; and

28 (ii) such other technologies as are determined appropriate by the Director of
29 ARPA-E.

30 (4) BREAKTHROUGH RESEARCH IN RENEWABLE FUELS.—

31 (A) IN GENERAL.—A continuing joint program shall be established under which
32 grants shall be provided to eligible entities to conduct research to promote
33 breakthroughs in biofuel technology, or in the use of other renewable energy sources,
34 to produce liquid or gaseous fuels from sources of carbon dioxide that have the greatest
35 potential to reduce the delay before the date on which all of the transportation fuel
36 demands of the United States can be met without the use of fossil oil, including
37 imported or domestic fossil fuel.

38 (B) PROPOSAL SELECTION.—In selecting grant proposals under this paragraph, a
39 selection team shall select the proposals that collectively best meet the criteria
40 described in subparagraph (A) using funds made available under paragraph (1).

1 (C) DURATION.—The joint program established under this paragraph shall continue
2 until the date the Director of ARPA-E and the National Science Foundation agree that
3 research is so mature, in the applicable field, that there is a small probability of further
4 significant breakthroughs described in subparagraph (A) that are applicable to national
5 energy security and global climate change.

6 (g) Maximum Grant Amount.—The amount of an individual grant made to an eligible entity
7 under this section shall not exceed \$2,000,000.

8 (h) Funding.—Subject to subsection (f)(1), this section shall be carried out using—

9 (1) funds available to ARPA-E; and

10 (2) any other additional funds that are available from other sources (including other
11 interested government agencies).

12 SEC. 5. OPEN FUEL STANDARD FOR 13 TRANSPORTATION.

14 (a) In General.—Chapter 329 of title 49, United States Code, is amended by adding at the end
15 the following:

16 “SEC. 32920. OPEN FUEL STANDARD FOR 17 TRANSPORTATION.

18 “(a) In General.—Except as provided in subsection (b), the annual covered inventory of each
19 light-duty automobile manufacturer shall be comprised of at least the following fraction of
20 qualified alternative fuel vehicles (as defined in section 30B(e)(4) of the Internal Revenue Code
21 of 1986):

22 “(1) Not less than 10 percent in 2012.

23 “(2) Not less than 20 percent in 2013.

24 “(3) Not less than 50 percent in 2014.

25 “(4) Not less than 70 percent in 2015.

26 “(5) Not less than 80 percent in 2016 and each subsequent year.

27 “(b) Temporary Exemption From Requirements.—

28 “(1) APPLICATION.—

29 “(A) IN GENERAL.—A manufacturer may request an exemption from the
30 requirements of subsection (a) by submitting an application to the Administrator of the
31 Environmental Protection Agency (referred to in this section as the ‘Administrator’), at
32 such time, in such manner, and containing such information as the Administrator may
33 require by regulation.

34 “(B) CONTENT.—Each application shall specify the models, lines, and types of
35 automobiles affected.

36 “(2) EVALUATION.—After evaluating an application received from a manufacturer, the
37 Administrator may at any time, under such terms and conditions, and to such extent as the

1 Administrator considers appropriate, temporarily exempt, or renew the exemption of, a
2 light-duty automobile from the requirements of subsection (a) if the Administrator
3 determines that unavoidable events that are not under the control of the manufacturer
4 prevent the manufacturer of the automobile from meeting the required production volume of
5 fuel choice-enabling automobiles of the manufacturer, including—

6 “(A) a disruption in the supply of any component required for compliance with
7 subsection (a);

8 “(B) a disruption in the use and installation by the manufacturer of the component;
9 or

10 “(C) the failure of plug-in hybrid electric automobiles to meet State air quality
11 requirements as a result of the requirements of subsection (a).

12 “(3) CONSOLIDATION.—The Administrator may consolidate applications received from
13 multiple manufactures under paragraph (1) if the applications are of a similar nature.

14 “(4) CONDITIONS.—Any exemption granted under this subsection shall be conditioned on
15 the commitment of the manufacturer to recall the exempted automobiles for installation of
16 the omitted components within a reasonable time proposed by the manufacturer and
17 approved by the Administrator after the components become available in sufficient
18 quantities to satisfy anticipated production and recall volume requirements.

19 “(5) NOTICE.—The Administrator shall publish in the Federal Register—

20 “(A) notice of each application received from a manufacturer under this subsection;

21 “(B) notice of each decision to grant or deny a temporary exemption under this
22 subsection; and

23 “(C) the reasons for granting or denying the exemptions.

24 “(c) Limited Liability Protection for Renewable Fuel and Ethanol Manufacture, Use, or
25 Distribution.—

26 “(1) IN GENERAL.—Notwithstanding any other provision of Federal or State law, any fuel
27 containing ethanol or a renewable fuel (as defined in section 211(o)(1) of the Clean Air Act
28 (42 U.S.C. 7545(o)(1)) that is used or intended to be used to operate an internal combustion
29 engine shall not be considered to be a defective product or subject to a failure to warn due to
30 the ethanol or renewable fuel content unless the fuel violates a control or prohibition
31 imposed by the Administrator under section 211 of that Act.

32 “(2) SAVINGS PROVISION.—Nothing in this subsection affects the liability of any person
33 other than liability based on a claim of defective product and failure to warn described in
34 paragraph (1).

35 “(3) RULEMAKING.—Not later than 1 year after the date of the enactment of this section,
36 the Administrator shall promulgate regulations to carry out this section.”.

37 (b) Clerical Amendment.—The table of sections for chapter 329 of title 49, United States
38 Code, is amended by adding at the end the following:

39 “Sec.32920.Open fuel standard for transportation.”.

1 **SEC. 6. FLEXIBLE ALTERNATIVE FUEL MOTOR**
2 **VEHICLE CREDIT.**

3 (a) Modifications to New Qualified Alternative Fuel Motor Vehicle Credit.—

4 (1) IN GENERAL.—Clause (i) of section 30B(e)(4)(A) of the Internal Revenue Code of
5 1986 is amended to read as follows—

6 “(i) which—

7 “(I) is capable of operating for more than 175 miles on an alternative fuel
8 and is capable of operating on gasoline or diesel fuel, without any need for
9 any special actions by the operator or owner in order to switch from one fuel
10 to another other than refueling itself and the flip of one switch,

11 “(II) is a new qualified plug-in electric drive motor vehicle (as defined in
12 section 30D(d)(1) determined without regard to subparagraph (E) thereof)
13 with respect to which no credit is allowable under section 30D by reason of
14 section 30D(e), or

15 “(III) is propelled solely by an electric motor which draws electricity from
16 a battery.”.

17 (2) CERTIFICATION REQUIREMENTS.—Subparagraph (A) of section 30B(e)(4) of the
18 Internal Revenue Code of 1986 is amended by striking “and” at the end of clause (iii), by
19 striking the period at the end of clause (iv) and inserting a comma, and by adding at the end
20 the following new clauses:

21 “(v) which, in the case of a motor vehicle described in clause (i)(I), is certified
22 by the manufacturer as being able to perform efficiently in normal operation on a
23 combination of an alternative fuel and a petroleum-based fuel, and

24 “(vi) which, in the case of a motor vehicle which is capable of operating on
25 methanol or M85—

26 “(I) displays on the refueling plate a colorful decal issued by the
27 Environmental Protection Agency, and

28 “(II) contains a conspicuous notice in the owner’s manual informing the
29 user that M85 or E85 may be used at any time without affecting the
30 warranty.”.

31 (3) CREDIT FOR AFTERMARKET CONVERSIONS.—

32 (A) IN GENERAL.—Paragraph (1) of section 30B(e) of the Internal Revenue Code of
33 1986 is amended to read as follows:

34 “(1) ALLOWANCE OF CREDIT.—The qualified alternative fuel motor vehicle credit
35 determined under this subsection is—

36 “(A) in the case of a new qualified alternative fuel motor vehicle, an amount equal to
37 the applicable percentage of the incremental cost of any new qualified alternative fuel
38 motor vehicle placed in service by the taxpayer during the taxable year, and

39 “(B) in the case of any motor vehicle which is converted to a qualified alternative

1 fuel motor vehicle, an amount equal to the applicable percentage of the cost of
2 converting such vehicle.”.

3 (B) DEFINITION OF QUALIFIED ALTERNATIVE FUEL MOTOR VEHICLE.—Paragraph (5)
4 of section 30B(e) of such Code is amended to read as follows:

5 “(5) QUALIFIED ALTERNATIVE FUEL MOTOR VEHICLE.—For purposes of this paragraph, the
6 term ‘qualified alternative fuel motor vehicle’ means any new qualified alternative fuel
7 motor vehicle (as defined in paragraph (4)(A), determined without regard to whether such
8 vehicle is made by a manufacturer or whether the original use of such vehicle commences
9 with the taxpayer).”.

10 (C) CREDIT ALLOWED IN ADDITION TO OTHER CREDITS.—Section 30B(e) of such
11 Code is amended by adding at the end the following new paragraph:

12 “(6) SPECIAL RULE FOR CONVERTED VEHICLES.—The credit allowed under paragraph
13 (1)(B) shall be allowed with respect to a motor vehicle notwithstanding whether a credit has
14 been allowed with respect to such motor vehicle under this section (other than this
15 paragraph) in any preceding taxable year.”.

16 (D) CONFORMING AMENDMENTS.—

17 (i) Paragraph (4) of section 30B(a) of such Code is amended by striking “new”.

18 (ii) Paragraph (2) of section 30B(e) of such Code is amended by inserting “or
19 any qualified alternative fuel motor vehicle” after “new qualified alternative fuel
20 motor vehicle”.

21 (4) TEMPORARY EXTENSION OF CREDIT.—Paragraph (4) of section 30B(k) of the Internal
22 Revenue Code of 1986 is amended—

23 (A) by striking “new”, and

24 (B) by striking “December 31, 2010” and inserting “December 31, 2011”.

25 (5) EFFECTIVE DATE.—The amendments made by this subsection shall apply to property
26 placed in service after December 31, 2010.

27 (b) Fuel Flexibility Requirement for New Qualified Hybrid Motor Vehicles.—

28 (1) IN GENERAL.—Section 30B(d)(3)(A) of the Internal Revenue Code of 1986 is
29 amended by striking “and” at the end of clause (vi), by striking the period at the end of
30 clause (vii) and inserting a comma, and by adding at the end the following new clauses:

31 “(viii) is capable of operating on both gasoline or diesel fuel and an alternative
32 fuel (as defined in subsection (e)(4)(B)), without any need for any special actions
33 by the operator or owner in order to switch from one fuel to another other than
34 refueling itself and the flip of one switch, and is capable of operating for more
35 than 175 miles on an alternative fuel,

36 “(ix) which is certified by the manufacturer as being able to perform efficiently
37 in normal operation on a combination of an alternative fuel and a petroleum-based
38 fuel, and

39 “(x) which, in the case of a motor vehicle which is capable of operating on
40 methanol or M85—

1 “(I) displays on the refueling plate a colorful decal issued by the
2 Environmental Protection Agency, and

3 “(II) contains a conspicuous notice in the owner’s manual informing the
4 user that M85 or E85 may be used at any time without affecting the
5 warranty.”.

6 (2) CREDIT NOT ALLOWED IN ADDITION TO QUALIFIED ALTERNATIVE FUEL MOTOR VEHICLE
7 CREDIT.—Section 30D(e)(4) of such Code is amended by adding at the end the following
8 new subparagraph:

9 “(C) EXCLUSION OF NEW QUALIFIED HYBRID MOTOR VEHICLES.—Any vehicle with
10 respect to which a credit is allowable under subsection (d) shall not be taken into
11 account under this subsection.”.

12 (3) EFFECTIVE DATE.—Except as otherwise provided, the amendments made by this
13 subsection shall apply to property placed in service after December 31, 2011.

14 (4) EXTENSION OF CURRENT LAW CREDIT.—

15 (A) IN GENERAL.—Section 30B(k) of the Internal Revenue Code of 1986 is
16 amended—

17 (i) in paragraph (2), by striking “or a new qualified hybrid motor vehicle (as
18 described in subsection (d)(2)(A))”, and

19 (ii) in paragraph (3), by striking “(as described in subsection (d)(2)(B)),
20 December 31, 2009” and inserting “(as described in subsection (d)(2)), December
21 31, 2011”.

22 (B) EFFECTIVE DATE.—The amendments made by this paragraph shall apply to
23 taxable years beginning after December 31, 2009.

24 (c) Elimination of Limitation for New Qualified Hybrid and Advanced Lean-Burn Technology
25 Vehicles.—

26 (1) IN GENERAL.—Subsection (f) of section 30B of the Internal Revenue Code of 1986 is
27 amended by striking subsection (f).

28 (2) EFFECTIVE DATE.—The amendments made by this subsection shall take effect on the
29 date of the enactment of this Act.

30 (d) Phase-Out and Termination of Alternative Motor Vehicle Credits After 2011.—

31 (1) IN GENERAL.—Section 30B of the Internal Revenue Code of 1986, as amended by
32 subsection (c), is amended to by inserting after subsection (e) the following new subsection:

33 “(f) Phase-Out of Credit for Certain Vehicles.—

34 “(1) IN GENERAL.—

35 “(A) PHASE-OUT AND TERMINATION OF CREDIT FOR FUTURISTIC MOTOR VEHICLES.—
36 In the case of any futuristic motor vehicle—

37 “(i) the dollar amount of the credit allowed under this section (determined
38 without regard to this subsection) shall be reduced by 50 percent in any taxable
39 year beginning after the first calendar year for which the Secretary, in

1 consultation with the Administrator of the Environmental Protection Agency,
2 determines that not less than $\frac{1}{3}$ of sales of motor vehicles in the United States
3 during such calendar year are sales of futuristic motor vehicles, and

4 “(ii) no credit shall be allowed under this section in any taxable year beginning
5 after the first calendar year for which the Secretary, in consultation with the
6 Administrator of the Environmental Protection Agency, determines that not less
7 than $\frac{2}{3}$ of sales of motor vehicles in the United States during such calendar year
8 are sales of futuristic motor vehicles.

9 “(B) PHASE-OUT AND TERMINATION OF CREDIT FOR OTHER MOTOR VEHICLES.—In the
10 case of any motor vehicle which is not a futuristic motor vehicle—

11 “(i) the dollar amount of the credit allowed under this section (determined
12 without regard to this subsection) shall be reduced by 50 percent in any taxable
13 year beginning after the first calendar year for which the Secretary, in
14 consultation with the Administrator of the Environmental Protection Agency,
15 determines that not less than $\frac{1}{3}$ of sales of motor vehicles in the United States
16 during such calendar year are sales of motor vehicles with respect to which a
17 credit is allowable under this section other than by reason of subsection (c)
18 (determined without regard to this subsection), section 30, and section 30D, and

19 “(ii) no credit shall be allowed under this section in any taxable year beginning
20 after the first calendar year for which the Secretary, in consultation with the
21 Administrator of the Environmental Protection Agency, determines that not less
22 than $\frac{2}{3}$ of sales of motor vehicles in the United States during such calendar year
23 are sales of motor vehicles with respect to which a credit is allowable under this
24 section other than by reason of subsection (c) (determined without regard to this
25 subsection), section 30, and section 30D.

26 “(2) FUTURISTIC MOTOR VEHICLE.—For purposes of this subsection, the term ‘futuristic
27 motor vehicle’ means—

28 “(A) any new qualified fuel cell motor vehicle (as described in subsection (b)(3)),

29 “(B) any qualified plug-in electric drive motor vehicle (as described in subsection
30 (i)(2)) which—

31 “(i) meets the requirements of subsection (e)(4)(A)(i)(I), and

32 “(ii) has an all-electric driving range of not less than 40 miles, and

33 “(C) any qualified alternative fuel motor vehicle which is propelled solely by an
34 electric motor which draws electricity from a battery.”.

35 (2) TERMINATION FOR ADVANCED LEAN BURN MOTOR VEHICLES.—Section 30B(c) of such
36 Code is amended by adding at the end the following new paragraph:

37 “(5) TERMINATION.—This section shall not apply to any new advanced lean burn
38 technology motor vehicle purchased after December 31, 2010.”.

39 (3) CONFORMING AMENDMENT.—Section 30B of such Code is amended by striking
40 subsection (k).

1 (4) EFFECTIVE DATE.—The amendments made by this subsection shall apply to taxable
2 years beginning after December 31, 2011.

3 **SEC. 7. EXPANSION OF ALTERNATIVE FUEL VEHICLE**
4 **REFUELING PROPERTY CREDIT.**

5 (a) Credit Amount.—Subsection (a) of section 30C of the Internal Revenue Code of 1986 is
6 amended by striking “30 percent” and inserting “50 percent”.

7 (b) Limitations.—Subsection (b) of section 30C of the Internal Revenue Code of 1986 is
8 amended to read as follows—

9 “(b) Limitations.—

10 “(1) IN GENERAL.—The credit allowed under subsection (a) with respect to all qualified
11 alternative fuel vehicle refueling property placed in service by the taxpayer during the
12 taxable year at a location shall not exceed—

13 “(A) \$50,000 in the case of a property of a character subject to an allowance for
14 depreciation, and

15 “(B) \$2,000 in any other case.

16 “(2) CUMULATIVE LIMITATION.—The aggregate credits allowed under subsection (a) for
17 all taxable years with respect to all qualified alternative fuel vehicle refueling property
18 placed in service by the taxpayer at all locations shall not exceed \$400,000.”.

19 (c) Qualified Property.—Subsection (c) of section 30C of the Internal Revenue Code of 1986
20 is amended to read as follows—

21 “(c) Qualified Alternative Fuel Vehicle Refueling Property.—For purposes of this section, the
22 term ‘qualified alternative fuel vehicle refueling property’ means any property (not including a
23 building and its structural components) if—

24 “(1) such property is of a character subject to an allowance for depreciation, or is
25 installed on property which is used as the principal residence (within the meaning of section
26 121) of the taxpayer,

27 “(2) the original use of such property begins with the taxpayer, and

28 “(3) such property is—

29 “(A) for the storage or dispensing of fuel into the fuel tank of a motor vehicle
30 propelled by such fuel, but only if the storage or dispensing of the fuel is at the point
31 where such fuel is delivered into the fuel tank of the motor vehicle and if such property
32 is—

33 “(i) a pump or tank which is capable of dispensing (at the option of the
34 taxpayer) petroleum fuel, fuel at least 85 percent of which is ethanol, fuel at least
35 85 percent of which is methanol, and any mixture of such fuels, or

36 “(ii) a pump or tank for the dispensing of natural gas, compressed natural gas,
37 liquefied natural gas, liquefied petroleum gas, or hydrogen, or

38 “(B) for the recharging of motor vehicles propelled by electricity, but only if such

1 property—

2 “(i) is located at the point where the motor vehicles are recharged,

3 “(ii) complies with all connection standards of the Society of Automotive
4 Engineers, and

5 “(iii) provides non-restrictive access for charging and for payment
6 interoperability with other systems.”.

7 (d) Credit for Retrofit Property.—Section 30C of the Internal Revenue Code of 1986 is
8 amended by redesignating subsection (g) as subsection (h) and inserting after subsection (f) the
9 following new subsection:

10 “(g) Credit for Retrofit Property.—

11 “(1) IN GENERAL.—For purposes of this section (including subsection (b)(2), and subject
12 to paragraph (2) of this subsection), qualified retrofit property shall be treated as qualified
13 alternative fuel vehicle refueling property.

14 “(2) INCREASED CREDIT AMOUNT.—In determining the credit under subsection (a) with
15 respect to any qualified retrofit property, such subsection shall be applied by substituting
16 ‘80 percent’ for ‘50 percent’.

17 “(3) QUALIFIED RETROFIT PROPERTY.—For purposes of this subsection—

18 “(A) IN GENERAL.—The term ‘qualified retrofit property’ means any property which
19 is installed on nonqualified refueling property for the purpose of converting such
20 nonqualified refueling property into qualified alternative fuel vehicle refueling
21 property (defined without regard to this subsection).

22 “(B) NONQUALIFIED REFUELING PROPERTY.—The term ‘nonqualified refueling
23 property’ means refueling property which would be described in section 179A(d) if all
24 fuels were considered clean-burning fuels.

25 “(4) DENIAL OF DOUBLE CREDIT.—Other than the credit allowed for qualified retrofit
26 property by reason of this subsection, no credit shall be allowed under this section for any
27 property that has been converted into qualified alternative fuel vehicle refueling property by
28 means of the installation of qualified retrofit property on such property.”.

29 (e) Phase-Out of Credit.—Subsection (h) of section 30C of the Internal Revenue Code of
30 1986, as redesignated by subsection (d), is amended to read as follows—

31 “(h) Phase-Out of Section.—

32 “(1) IN GENERAL.—In the case of any calendar year after the first calendar year in which
33 the Secretary, in consultation with the Administrator of the Environmental Protection
34 Agency, determines that more than $\frac{1}{3}$ of the commercial refueling stations in the United
35 States which dispense liquid or gaseous fuels for use in motor vehicles (within the meaning
36 of section 179A) have in service at such stations at least 1 item of refueling property
37 described in subparagraph (A) of subsection (c)(2), in determining the credit under
38 subsection (a) with respect to any qualified alternative fuel vehicle refueling property placed
39 in service during such year, such subsection (a) shall be applied by substituting ‘25 percent’
40 for ‘50 percent’.

1 “(2) TERMINATION.—This section shall not apply to any property placed in service after
2 December 31 of the first year in which the Secretary, in consultation with the Administrator
3 of the Environmental Protection Agency, determines that more than $\frac{2}{3}$ of the commercial
4 refueling stations in the United States which dispense liquid or gaseous fuels for use in
5 motor vehicles (within the meaning of section 179A) have in service at such stations at least
6 1 item of refueling property described in subparagraph (A) of subsection (c)(2).”.

7 (f) Conforming Amendment.—Subsection (e) of section 30C of the Internal Revenue Code of
8 1986 is amended by striking paragraph (6).

9 (g) Effective Date.—The amendments made by this section shall apply to property placed in
10 service after December 31, 2010.