

111TH CONGRESS
1ST SESSION

S. 1713

To establish loan guarantee programs to develop biochar technology using excess plant biomass, to establish biochar demonstration projects on public land, and for other purposes.

IN THE SENATE OF THE UNITED STATES

SEPTEMBER 24, 2009

Mr. REID (for himself, Mr. BAUCUS, Mr. HATCH, Mr. TESTER, and Mr. UDALL of New Mexico) introduced the following bill; which was read twice and referred to the Committee on Energy and Natural Resources

A BILL

To establish loan guarantee programs to develop biochar technology using excess plant biomass, to establish biochar demonstration projects on public land, 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.**

4 This Act may be cited as the “Water Efficiency via
5 Carbon Harvesting and Restoration (WECHAR) Act of
6 2009”.

7 **SEC. 2. FINDINGS AND PURPOSE.**

8 (a) FINDINGS.—Congress finds that—

1 (1) numerous expert reports have brought at-
2 tention to the negative impacts caused by invasive
3 weed species, including the consumption of water in
4 areas with diminishing supplies;

5 (2) salt cedar, or Tamarix species, a noxious
6 and invasive plant commonly found on public land
7 can consume 200 gallons of water per plant each
8 day;

9 (3) salt cedar now covers as much as 1,000,000
10 acres of floodplains, riparian acres, wetland, and
11 lake margins in the Western United States;

12 (4) minimizing the impact of and eradicating
13 invasive species that wrest water from delicate wa-
14 tersheds is in the best interest of the United States;

15 (5) as drought conditions worsen and legal re-
16 quirements relating to water supply accelerate water
17 shortages, innovative approaches are needed to ad-
18 dress the increasing demand for water;

19 (6) pine bark beetle has killed thousands of
20 acres of standing forests in the Western United
21 States, creating a hazardous buildup of dead tree
22 biomass that is a serious fire threat to those and
23 surrounding areas;

24 (7) biochar technology would result in a more
25 cost-effective, environmentally beneficial, and suc-

1 successful approach to combating invasive weeds and
2 removing excess biomass and plant waste from pub-
3 lic land;

4 (8) invasive weeds and excess biomass on public
5 land can serve as feedstock for biochar and alter-
6 native fuel production;

7 (9) it is in the best interest of the United
8 States to conduct a comprehensive and thorough re-
9 search, development, and demonstration program on
10 biochar and related bioenergy so as to better under-
11 stand how to use excess biomass available on public
12 land; and

13 (10) biochar production and use systems have
14 been shown to have many ancillary beneficial envi-
15 ronmental impacts.

16 (b) PURPOSES.—The purposes of this Act are—

17 (1) to restore the natural hydrology of Western
18 landscapes by removing water-intensive invasive
19 plant species;

20 (2) to reduce dangerous forest and rangeland
21 fuel loads;

22 (3) to develop technologies to convert undesir-
23 able invasive plant species to useful materials;

24 (4) to develop markets for those materials; and

1 (5) to provide technologies to land managers to
2 continue those processes into the future.

3 **SEC. 3. DEFINITIONS.**

4 In this Act:

5 (1) **BIOCHAR.**—The term “biochar” means
6 charcoal or black carbon derived from organic mat-
7 ter through pyrolysis.

8 (2) **BIOENERGY.**—The term “bioenergy” means
9 hydrocarbons derived from organic matter through
10 pyrolysis, including bio-oil, syngas, or thermal en-
11 ergy.

12 (3) **EXCESS BIOMASS.**—

13 (A) **IN GENERAL.**—The term “excess bio-
14 mass” means any plant matter targeted for re-
15 moval from public land to promote ecosystem
16 health.

17 (B) **INCLUSIONS.**—The term “excess bio-
18 mass” includes—

19 (i) trees or tree waste on public land;

20 (ii) wood and wood wastes and resi-
21 dues; and

22 (iii) weedy plants and grasses (includ-
23 ing aquatic, noxious, or invasive plants).

24 (4) **FEEDSTOCK.**—The term “feedstock” means
25 excess biomass in the form of plant matter or mate-

1 rials that serves as the raw material for the produc-
2 tion of biochar and bioenergy.

3 (5) INVASIVE PLANT SPECIES.—The term
4 “invasive plant species” means a species—

5 (A) that is nonnative to a specified eco-
6 system; and

7 (B) the introduction to an ecosystem of
8 which causes, or may cause, harm to—

9 (i) the economy;

10 (ii) the environment;

11 (iii) water resources; or

12 (iv) human, animal, or plant health.

13 (6) SECRETARY CONCERNED.—The term “Sec-
14 retary concerned” means the Secretary of the Inte-
15 rior or the Secretary of Agriculture, as appropriate.

16 **SEC. 4. RESOURCE ASSESSMENT.**

17 (a) IN GENERAL.—The Director of the United States
18 Geological Survey shall conduct resources assessments
19 that collect and synthesize interagency and State data to
20 quantify—

21 (1) invasive plant species and excess biomass in
22 the form of dangerous fuel loads on public land that
23 can be used for feedstock;

24 (2) estimated carbon content in that feedstock;

1 (3) estimated potential biochar and bioenergy
2 producible from that feedstock; and

3 (4) potential water savings resulting from re-
4 moval of invasive plant species and excess biomass
5 on public land, by watershed.

6 (b) REPORT.—Not later than 1 year after the date
7 of enactment of this Act and biennially thereafter, the Di-
8 rector of United States Geological Survey shall submit to
9 Congress a report that describes the results of each re-
10 source assessment conducted under subsection (a).

11 **SEC. 5. TECHNOLOGY RESEARCH.**

12 (a) DEVELOPMENT OF MOBILE BIOCHAR PRODUC-
13 TION UNITS.—Not later than 1 year after the date of en-
14 actment of this Act and in accordance with subsection (c),
15 the Secretary of the Interior shall establish a program to
16 provide guarantees of loans by private institutions—

17 (1) to develop and optimize commercially and
18 technologically viable biochar production units
19 that—

20 (A) are designed to use woody invasive
21 plant species and excess biomass feedstock such
22 as tamarisk, pinyon pine, and juniper;

23 (B) produce net negative carbon emissions
24 relative to natural decomposition;

1 (C) are self-contained on a portable plat-
 2 form suitable for deployment to remote loca-
 3 tions and on unpaved roads; and

4 (D) can capture biochar and bioenergy
 5 produced for immediate energy needs or trans-
 6 port to market; and

7 (2) to produce, not later than 2 years after the
 8 date of securing a guaranteed loan under this sec-
 9 tion for the purposes described in section 7(a)(2), 4
 10 biochar production units for deployment to remote
 11 landscapes, of which—

12 (A) 2 shall be dedicated primarily to con-
 13 tract work with the Bureau of Land Manage-
 14 ment; and

15 (B) 2 shall be dedicated primarily to con-
 16 tract work with the National Park Service.

17 (b) DEVELOPMENT OF FIXED BIOCHAR PRODUCTION
 18 UNITS.—Not later than 1 year after the date of enactment
 19 of this Act and in accordance with subsection (c), the Sec-
 20 retary of Agriculture shall establish a program to provide
 21 guarantees of loans by private institutions—

22 (1) to develop and optimize commercially and
 23 technologically viable biochar production units
 24 that—

1 (A) while not necessarily self contained,
2 can be disassembled, moved, and reassembled to
3 be operational on a new site within 30 days, so
4 as to support fuels reduction work;

5 (B) are designed to use excess biomass
6 feedstock, such as trees killed by bark beetle in-
7 festations;

8 (C) produce net negative carbon emissions
9 relative to natural decomposition;

10 (D) can capture biochar and bioenergy
11 produced for immediate energy needs or trans-
12 port to market; and

13 (2) to produce, not later than 2 years after the
14 date of securing a guaranteed loan under this sec-
15 tion for the purposes described in section 7(a)(3), 2
16 biochar production units for deployment to remote
17 landscapes.

18 (c) GUARANTEED LOAN PROGRAM.—

19 (1) IN GENERAL.—The Secretary concerned
20 may provide loan guarantees under this section to
21 an applicant if the biochar production units pro-
22 duced by the applicant will be dedicated primarily to
23 contract restoration work with the Bureau of Land
24 Management, National Park Service, or Forest Serv-
25 ice, using—

1 (A) pinyon pine and juniper feedstock in
2 the Great Basin;

3 (B) tamarisk feedstock in the Mojave
4 Desert; or

5 (C) excess biomass feedstock, such as trees
6 killed by bark beetle infestations in the Inter-
7 mountain West.

8 (2) CRITERIA.—In selecting recipients of loan
9 guarantees from among applicants, the Secretary
10 concerned shall give preference to proposals that, as
11 determined by the Secretary concerned—

12 (A) meet all applicable Federal and State
13 permitting requirements;

14 (B) are most likely to be successful; and

15 (C) are located in local markets that have
16 the greatest need for the biochar production
17 units due to—

18 (i) identified high-priority landscape
19 restoration needs;

20 (ii) availability of sufficient quantities
21 of feedstocks described in subsection (b);

22 or

23 (iii) a high level of demand for
24 biochar or other commercial byproducts of
25 the biochar production units.

1 (3) MATURITY.—A loan guaranteed under this
2 section shall have a maturity of not more than 20
3 years.

4 (4) TERMS AND CONDITIONS.—The loan agree-
5 ment for a loan guaranteed under this section shall
6 provide that no provision of the loan agreement may
7 be amended or waived without the consent of the
8 Secretary.

9 (5) GUARANTEE FEE.—The recipient of a loan
10 guarantee under this section shall pay to the Sec-
11 retary concerned a guarantee fee in an amount de-
12 termined by the Secretary concerned to be sufficient
13 to cover the administrative costs of the Secretary
14 concerned relating to the loan guarantee.

15 (6) FULL FAITH AND CREDIT.—

16 (A) IN GENERAL.—The full faith and cred-
17 it of the United States is pledged to the pay-
18 ment of all guarantees made by the Secretary
19 concerned under this section.

20 (B) EVIDENCE.—Any guarantee made by
21 the Secretary concerned under this section shall
22 be conclusive evidence of the eligibility of the
23 loan for the guarantee with respect to principal
24 and interest.

1 (C) VALIDITY.—The validity of any guar-
2 antee made by the Secretary concerned under
3 this section shall be incontestable in the hands
4 of a holder of the guaranteed loan.

5 (7) ANNUAL REPORTS.—Until the date on
6 which each guaranteed loan under this section has
7 been repaid in full, each year the Secretary con-
8 cerned shall submit to Congress a report on the ac-
9 tivities of the Secretary concerned under this section
10 during the preceding year.

11 **SEC. 6. EXISTING TECHNOLOGY.**

12 (a) IN GENERAL.—The Secretary of the Interior and
13 the Secretary of Agriculture shall each establish a pro-
14 gram to provide guarantees of loans by private institutions
15 for the construction or acquisition of facilities for the pro-
16 duction of biochar.

17 (b) REQUIREMENT.—The Secretary concerned may
18 provide a loan guarantee under this section to an applicant
19 if facilities constructed or acquired by the applicant will
20 be dedicated primarily to contract restoration work with
21 the Bureau of Land Management, National Park Service,
22 or Forest Service, using—

23 (1) pinyon pine and juniper feedstock in the
24 Great Basin;

25 (2) tamarisk feedstock in the Mojave Desert; or

1 (3) excess biomass feedstock, such as trees
2 killed by bark beetle infestations in the Inter-
3 mountain West.

4 (c) CRITERIA.—In selecting recipients of loan guar-
5 antees from among applicants, the Secretary concerned
6 shall give preference to proposals that, as determined by
7 the Secretary concerned—

8 (1) meet all applicable Federal and State per-
9 mitting requirements;

10 (2) are most likely to be successful; and

11 (3) are located in local markets that have the
12 greatest need for the facility due to—

13 (A) identified high-priority landscape res-
14 toration needs;

15 (B) availability of sufficient quantities of
16 feedstocks described in subsection (b); or

17 (C) a high level of demand for biochar or
18 other commercial byproducts of the facility.

19 (d) MATURITY.—A loan guaranteed under this sec-
20 tion shall have a maturity of not more than 20 years.

21 (e) TERMS AND CONDITIONS.—The loan agreement
22 for a loan guaranteed under this section shall provide that
23 no provision of the loan agreement may be amended or
24 waived without the consent of the Secretary concerned.

1 (f) GUARANTEE FEE.—The recipient of a loan guar-
2 antee under this section shall pay the Secretary concerned
3 a guarantee fee in an amount determined by the Secretary
4 concerned to be sufficient to cover the administrative costs
5 of the Secretary concerned relating to the loan guarantee.

6 (g) FULL FAITH AND CREDIT.—

7 (1) IN GENERAL.—The full faith and credit of
8 the United States is pledged to the payment of all
9 guarantees made by the Secretary concerned under
10 this section.

11 (2) EVIDENCE.—Any guarantee made by the
12 Secretary concerned under this section shall be con-
13 clusive evidence of the eligibility of the loan for the
14 guarantee with respect to principal and interest.

15 (3) VALIDITY.—The validity of any guarantee
16 made by the Secretary concerned under this section
17 shall be incontestable in the hands of a holder of the
18 guaranteed loan.

19 (h) ANNUAL REPORTS.—Until the date on which
20 each guaranteed loan under this section has been repaid
21 in full, each year the Secretary concerned shall submit to
22 Congress a report on the activities of the Secretary con-
23 cerned under this section during the preceding year.

24 **SEC. 7. DEPLOYMENT.**

25 (a) NEW TECHNOLOGY.—

1 (1) IN GENERAL.—Not later than 2 years after
2 the date of enactment of this Act, the Secretary of
3 the Interior and the Secretary of Agriculture shall
4 initiate 3-year programs to employ the biochar pro-
5 duction units provided under section 5 in pilot appli-
6 cations in various climates and ecosystems of the
7 United States.

8 (2) MOBILE UNITS.—In the case of biochar pro-
9 duction units developed or optimized under section
10 5(a)—

11 (A) the Director of the National Park
12 Service shall carry out initial programs using
13 invasive tamarisk in the Mojave Desert as feed-
14 stock; and

15 (B) the Director of the Bureau of Land
16 Management shall carry out initial programs
17 using excess pinyon pine and juniper biomass in
18 the Great Basin as feedstock.

19 (3) FIXED UNITS.—In the case of biochar pro-
20 duction units developed or optimized under section
21 5(b), the Chief of the Forest Service shall carry out
22 the initial program using bark beetle-killed trees in
23 the Intermountain West.

24 (b) EXISTING TECHNOLOGY.—

1 (1) IN GENERAL.—Not later than 180 days
2 after enactment of this Act, the Secretary of the In-
3 terior and the Secretary of Agriculture shall prepare
4 plans for carrying out 3-year landscape restoration
5 programs in various climates and ecosystems of the
6 United States to employ facilities constructed or ac-
7 quired under section 6.

8 (2) REQUIREMENTS.—In carrying out the land-
9 scape restoration programs described in paragraph
10 (1), the Secretary of the Interior and the Secretary
11 of Agriculture shall carry out programs using
12 invasive tamarisk in the Mojave Desert, excess
13 pinyon pine and juniper biomass in the Great Basin,
14 and bark beetle-killed trees in the Intermountain
15 West.

16 **SEC. 8. APPLICATION AND MARKET RESEARCH.**

17 (a) ATTRIBUTES.—Not later than 1 year after the
18 date of enactment of this Act, the Secretary of Agriculture
19 shall provide competitive grants to conduct research and
20 analysis that identifies—

21 (1) attributes and composition profiles of
22 biochar produced from different feedstocks for use
23 as soil amendments; and

24 (2) attributes and composition profiles of bio-
25 energy produced from different feedstocks for use as

1 fuel for transportation, heating, or other uses identi-
2 fied in subsection (b)(1).

3 (b) MARKET DEVELOPMENT.—Not later than 1 year
4 after the date of enactment of this Act, the Secretary of
5 Agriculture, acting through the Director of the National
6 Institute of Food and Agriculture, the Administrator of
7 the Agricultural Research Service, and the Administrator
8 of the Agricultural Marketing Service shall provide com-
9 petitive grants to conduct research and analysis that—

10 (1) identifies potential uses and markets for
11 biochar and bioenergy; and

12 (2) in the case of economic and life-cycle issues,
13 analyzes—

14 (A) the full production costs versus the
15 economic benefits of biochar production sys-
16 tems;

17 (B) the impact of the production and use
18 of biochar, including the performance of biochar
19 in carbon sequestration programs; and

20 (C) the availability of feedstocks and the
21 efficiency of using those feedstock for biochar
22 production as compared to other biofuel-produc-
23 tion systems.

24 (c) ENVIRONMENTAL REVIEW.—Not later than 1
25 year after the date of enactment of this Act, the Secretary

1 of Agriculture shall provide competitive grants to conduct
2 research and analysis relating to—

3 (1) the environmental benefits of biochar pro-
4 duction and use, including—

5 (A) the water savings resulting from re-
6 ducing populations of invasive or noxious plant
7 species;

8 (B) the potential of biochar production
9 systems—

10 (i) to reduce fertilizer use, nutrient
11 leaching, and run-off; and

12 (ii) to reduce water pollution from
13 feedlot runoff by capturing ammonia; and

14 (C) the reduction in greenhouse gas emis-
15 sions resulting from the production and use of
16 related bioenergy;

17 (2) the potential environmental impacts of
18 biochar and bioenergy use, including—

19 (A) the potential toxicity and other adverse
20 ecosystem effects resulting from biochar pro-
21 duction or use of different biochars, as identi-
22 fied under subsection (a)(1);

23 (B) the characterization of combustion
24 products of bioenergy, as identified under sub-

1 section (a)(2), and the effects of those combus-
2 tion products on air and water quality; and

3 (C) impacts on human health and safety.

4 (d) DEVELOPMENT OF BIOCHAR IN LANDSCAPE RES-
5 TORATION.—Not later than 1 year after the date of enact-
6 ment of this Act, the Secretary of Agriculture, acting
7 through the Director of the National Institute of Food and
8 Agriculture and the Administrator of the Agricultural Re-
9 search Service, shall provide competitive grants to re-
10 search and analyze—

11 (1) the potential uses of biochar in landscape
12 restoration in different ecosystems and soil types;

13 (2) the relative benefits and potential adverse
14 effects of use of different biochars, as identified
15 under subsection (a)(1) in different western eco-
16 systems and soil types; and

17 (3) the safety and efficacy of different methods
18 of application.

19 **SEC. 9. AUTHORIZATION OF APPROPRIATIONS.**

20 There are authorized to be appropriated to carry out
21 sections 4 through 8, including for the cost of grants and
22 loan guarantees under those sections, such sums as are
23 necessary for each of fiscal years 2010 through 2016.

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