

106<sup>TH</sup> CONGRESS  
2<sup>D</sup> SESSION

# S. 935

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## AN ACT

To authorize research to promote the conversion of biomass into biobased industrial products, 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,*

1     **TITLE I—BIOMASS RESEARCH**  
2     **AND DEVELOPMENT ACT OF 2000**

3     **SEC. 101. SHORT TITLE.**

4             This title may be cited as the “Biomass Research and  
5     Development Act of 2000”.

6     **SEC. 102. FINDINGS.**

7             Congress finds that—

8                     (1) conversion of biomass into biobased indus-  
9             trial products offers outstanding potential for benefit  
10            to the national interest through improved strategic  
11            security and balance of payments, healthier rural  
12            economies, improved environmental quality, near-  
13            zero net greenhouse gas emissions, technology ex-  
14            port, and sustainable resource supply;

15                    (2) the key technical challenges to be overcome  
16            in order for biobased industrial products to be cost  
17            competitive are finding new technology and reducing  
18            the cost of technology for converting biomass into  
19            desired biobased industrial products;

20                    (3) biobased fuels, such as ethanol, have the  
21            clear potential to be sustainable, low cost, and high  
22            performance fuels that are compatible with both cur-  
23            rent and future transportation systems and provide  
24            near zero net greenhouse gas emissions;

25                    (4) biobased chemicals—

1 (A) can provide functional replacements  
2 for essentially all organic chemicals that are  
3 currently derived from petroleum; and

4 (B) have the clear potential for environ-  
5 mentally benign product life cycles;

6 (5) biobased power can provide environmental  
7 benefits, promote rural economic development, and  
8 diversify energy resource options;

9 (6) many biomass feedstocks suitable for indus-  
10 trial processing show the clear potential for sustain-  
11 able production, in some cases resulting in improved  
12 soil fertility and carbon sequestration;

13 (7)(A) grain processing mills are biorefineries  
14 that produce a diversity of useful food, chemical,  
15 feed, and fuel products; and

16 (B) technologies that result in further diver-  
17 sification of the range of value-added biobased in-  
18 dustrial products can meet a key need for the grain  
19 processing industry;

20 (8)(A) cellulosic feedstocks are attractive be-  
21 cause of their low cost and widespread availability;  
22 and

23 (B) research resulting in cost-effective tech-  
24 nology to overcome the recalcitrance of cellulosic bio-  
25 mass would allow biorefineries to produce fuels and

1 bulk chemicals on a very large scale, with a commen-  
2 surately large realization of the benefit described in  
3 paragraph (1);

4 (9) research into the fundamentals to under-  
5 stand important mechanisms of biomass conversion  
6 can be expected to accelerate the application and ad-  
7 vancement of biomass processing technology by—

8 (A) increasing the confidence and speed  
9 with which new technologies can be scaled up;  
10 and

11 (B) giving rise to processing innovations  
12 based on new knowledge;

13 (10) the added utility of biobased industrial  
14 products developed through improvements in proc-  
15 essing technology would encourage the design of  
16 feedstocks that would meet future needs more effec-  
17 tively;

18 (11) the creation of value-added biobased indus-  
19 trial products would create new jobs in construction,  
20 manufacturing, and distribution, as well as new  
21 higher-valued exports of products and technology;

22 (12)(A) because of the relatively short-term  
23 time horizon characteristic of private sector invest-  
24 ments, and because many benefits of biomass proc-  
25 essing are in the national interest, it is appropriate

1 for the Federal Government to provide  
2 precommercial investment in fundamental research  
3 and research-driven innovation in the biomass proc-  
4 essing area; and

5 (B) such an investment would provide a valu-  
6 able complement to ongoing and past governmental  
7 support in the biomass processing area; and

8 (13) several prominent studies, including stud-  
9 ies by the President’s Council of Advisors on Science  
10 and Technology and the National Research  
11 Council—

12 (A) support the potential for large re-  
13 search-driven advances in technologies for pro-  
14 duction of biobased industrial products as well  
15 as associated benefits; and

16 (B) document the need for a focused, inte-  
17 grated, and innovation-driven research effort to  
18 provide the appropriate progress in a timely  
19 manner.

20 **SEC. 103. DEFINITIONS.**

21 In this title:

22 (1) **ADVISORY COMMITTEE.**—The term “Advi-  
23 sory Committee” means the Biomass Research and  
24 Development Technical Advisory Committee estab-  
25 lished by section 106.

1           (2) BIOBASED INDUSTRIAL PRODUCT.—The  
2 term “biobased industrial product” means fuels,  
3 commercial chemicals, building materials, or electric  
4 power or heat produced from biomass.

5           (3) BIOMASS.—The term “biomass” means any  
6 organic matter that is available on a renewable or  
7 recurring basis, including agricultural crops and  
8 trees, wood and wood wastes and residues, plants  
9 (including aquatic plants), grasses, residues, fibers,  
10 and animal wastes, municipal wastes and other  
11 waste materials.

12           (4) BOARD.—The term “Board” means the  
13 Biomass Research and Development Board estab-  
14 lished by section 105.

15           (5) INITIATIVE.—The term “Initiative” means  
16 the Biomass Research and Development Research  
17 Initiative established under section 107.

18           (6) INSTITUTION OF HIGHER EDUCATION.—The  
19 term “institution of higher education” has the  
20 meaning given that term in section 1201(a) of the  
21 Higher Education Act of 1965 (20 U.S.C. 1141(a)).

22           (7) NATIONAL LABORATORY.—The term “na-  
23 tional laboratory” means a facility or group of facili-  
24 ties owned, leased, or operated by a Federal agency  
25 (including a contractor of the Federal agency) for

1 the performance of research, development, or engi-  
2 neering.

3 (8) POINT OF CONTACT.—The term “point of  
4 contact” means a point of contact designated under  
5 section 104(d).

6 (9) PROCESSING.—The term “processing”  
7 means the derivation of biobased industrial products  
8 from biomass, including—

9 (A) feedstock production;

10 (B) harvest and handling;

11 (C) pretreatment or thermochemical proc-  
12 essing;

13 (D) fermentation;

14 (E) catalytic processing;

15 (F) product recovery; and

16 (G) coproduct production.

17 **SEC. 104. COOPERATION AND COORDINATION IN BIOMASS**  
18 **RESEARCH AND DEVELOPMENT.**

19 (a) IN GENERAL.—The Secretary of Agriculture and  
20 the Secretary of Energy shall cooperate with respect to,  
21 and coordinate, policies and procedures that promote re-  
22 search and development leading to the production of  
23 biobased industrial products.

24 (b) PURPOSE.—The purpose of the cooperation and  
25 coordination shall be to—

1           (1) understand the key mechanisms underlying  
2           the recalcitrance of biomass for conversion into  
3           biobased industrial products;

4           (2) develop new and cost-effective technologies  
5           that would result in large-scale commercial produc-  
6           tion of low cost and sustainable biobased industrial  
7           products;

8           (3) ensure that biobased industrial products are  
9           developed in a manner that enhances their economic,  
10          energy security, and environmental benefits; and

11          (4) promote the development and use of agricul-  
12          tural and energy crops for conversion into biobased  
13          industrial products.

14          (c) AREAS.—In carrying out this title, the Secretary  
15          of Agriculture and the Secretary of Energy, in consulta-  
16          tion with heads of appropriate departments and agencies,  
17          shall promote research and development to—

18               (1) advance the availability and widespread use  
19               of energy efficient, economically competitive, and en-  
20               vironmentally sound biobased industrial products in  
21               a manner that is consistent with the goals of the  
22               United States relating to sustainable and secure  
23               supplies of food, chemicals, and fuel;

1           (2) ensure full consideration of Federal land  
2 and land management programs as potential feed-  
3 stock resources for biobased industrial products; and

4           (3) assess the environmental, economic, and so-  
5 cial impact of production of biobased industrial  
6 products from biomass on a large scale.

7 (d) POINTS OF CONTACT.—

8           (1) IN GENERAL.—To coordinate research and  
9 development programs and activities relating to  
10 biobased industrial products that are carried out by  
11 their respective Departments—

12           (A) the Secretary of Agriculture shall des-  
13 ignate, as the point of contact for the Depart-  
14 ment of Agriculture, an officer of the Depart-  
15 ment of Agriculture appointed by the President  
16 to a position in the Department before the date  
17 of the designation, by and with the advice and  
18 consent of the Senate; and

19           (B) the Secretary of Energy shall des-  
20 ignate, as the point of contact for the Depart-  
21 ment of Energy, an officer of the Department  
22 of Energy appointed by the President to a posi-  
23 tion in the Department before the date of the  
24 designation, by and with the advice and consent  
25 of the Senate.

1           (2) DUTIES.—The points of contact shall  
2 jointly—

3           (A) assist in arranging interlaboratory and  
4 site-specific supplemental agreements for re-  
5 search, development, and demonstration  
6 projects relating to biobased industrial prod-  
7 ucts;

8           (B) serve as cochairpersons of the Board;

9           (C) administer the Initiative; and

10           (D) respond in writing to each rec-  
11 ommendation of the Advisory Committee made  
12 under section 106.

13 **SEC. 105. BIOMASS RESEARCH AND DEVELOPMENT BOARD.**

14           (a) ESTABLISHMENT.—There is established the Bio-  
15 mass Research and Development Board to coordinate pro-  
16 grams within and among departments and agencies of the  
17 Federal Government for the purpose of promoting the use  
18 of biobased industrial products by—

19           (1) maximizing the benefits deriving from Fed-  
20 eral grants and assistance; and

21           (2) bringing coherence to Federal strategic  
22 planning.

23           (b) MEMBERSHIP.—The Board shall consist of:

1           (1) The point of contact of the Department of  
2 Energy designated under section 104(d)(1)(B), who  
3 shall serve as cochairperson of the Board.

4           (2) The point of contact of the Department of  
5 Agriculture designated under section 104(d)(1)(A),  
6 who shall serve as cochairperson of the Board.

7           (3) A senior officer of each of the following  
8 agencies who is appointed by the head of the agency  
9 and who has a rank that is equivalent to the points  
10 of contact:

11                   (A) The Department of the Interior.

12                   (B) The Environmental Protection Agency.

13                   (C) The National Science Foundation.

14                   (D) The Office of Science and Technology  
15 Policy.

16           (4) At the option of the Secretary of Agri-  
17 culture and the Secretary of Energy, other members  
18 appointed by the Secretaries (after consultation with  
19 members described in paragraphs (1) through (3)).

20 (c) DUTIES.—The Board shall—

21           (1) coordinate research, development, and dem-  
22 onstration activities relating to biobased industrial  
23 products—

24                   (A) between the Department of Agriculture  
25 and the Department of Energy; and

1 (B) with other departments and agencies  
2 of the Federal Government; and

3 (2) provide recommendations to the points of  
4 contact concerning administration of this title.

5 (d) FUNDING.—Each agency represented on the  
6 Board is encouraged to provide funds for any purpose  
7 under this title.

8 (e) MEETINGS.—The Board shall meet at least quar-  
9 terly to enable the Board to carry out the duties of the  
10 Board under subsection (c).

11 **SEC. 106. BIOMASS RESEARCH AND DEVELOPMENT TECH-**  
12 **NICAL ADVISORY COMMITTEE.**

13 (a) ESTABLISHMENT.—There is established the Bio-  
14 mass Research and Development Technical Advisory Com-  
15 mittee to—

16 (1) advise the Secretary of Energy, the Sec-  
17 retary of Agriculture and the points of contact  
18 concerning—

19 (A) the technical focus and direction of re-  
20 quests for proposals issued under the Initiative;  
21 and

22 (B) procedures for reviewing and evalu-  
23 ating the proposals;

24 (2) facilitate consultations and partnerships  
25 among Federal and State agencies, agricultural pro-

1       ducers, industry, consumers, the research commu-  
2       nity, and other interested groups to carry out pro-  
3       gram activities relating to the Initiative; and

4               (3) evaluate and perform strategic planning on  
5       program activities relating to the Initiative.

6       (b) MEMBERSHIP.—The Committee shall consist of  
7       the following members appointed by the points of contact:

8               (1) An individual affiliated with the biobased  
9       industrial products industry.

10              (2) An individual affiliated with an institution  
11       of higher education who has expertise in biobased in-  
12       dustrial products.

13              (3) two prominent engineers or scientists from  
14       government or academia who have expertise in  
15       biobased industrial products.

16              (4) An individual affiliated with a commodity  
17       trade association.

18              (5) An individual affiliated with an environ-  
19       mental or conservation organization.

20              (6) An individual associated with State govern-  
21       ment who has expertise in biobased industrial prod-  
22       ucts.

23              (7) At the option of the points of contact, other  
24       members.

25       (c) DUTIES.—The Advisory Committee shall—

1           (1) advise the points of contact with respect to  
2           the Initiative; and

3           (2) evaluate whether, and make recommenda-  
4           tions in writing to the Board to ensure that—

5                   (A) funds authorized for the Initiative are  
6                   distributed and used in a manner that is con-  
7                   sistent with the goals of the Initiative;

8                   (B) the points of contact are funding pro-  
9                   posals under this title that are selected on the  
10                  basis of merit, as determined by an independent  
11                  panel of scientific and technical peers; and

12                  (C) activities under this title are carried  
13                  out in accordance with this title.

14           (d) MEETINGS.—The Advisory Committee shall meet  
15           at least quarterly to enable the Advisory Committee to  
16           carry out the duties of the Advisory Committee under sub-  
17           section (c).

18   **SEC. 107. BIOMASS RESEARCH AND DEVELOPMENT INITIA-**  
19                   **TIVE.**

20           (a) IN GENERAL.—The Secretary of Agriculture and  
21           the Secretary of Energy, acting through their respective  
22           points of contact and in consultation with the Board, shall  
23           establish and carry out a Biomass Research and Develop-  
24           ment Initiative under which competitively-awarded grants,  
25           contracts, and financial assistance are provided to, or en-

1 tered into with, eligible entities to carry out research on  
2 biobased industrial products.

3 (b) PURPOSES.—The purposes of grants, contracts,  
4 and assistance under this section shall be to—

5 (1) stimulate collaborative activities by a di-  
6 verse range of experts in all aspects of biomass proc-  
7 essing for the purpose of conducting fundamental  
8 and innovation-targeted research and technology de-  
9 velopment;

10 (2) enhance creative and imaginative ap-  
11 proaches toward biomass processing that will serve  
12 to develop the next generation of advanced tech-  
13 nologies making possible low cost and sustainable  
14 biobased industrial products;

15 (3) strengthen the intellectual resources of the  
16 United States through the training and education of  
17 future scientists, engineers, managers, and business  
18 leaders in the field of biomass processing; and

19 (4) promote integrated research partnerships  
20 among colleges, universities, national laboratories,  
21 Federal and State research agencies, and the private  
22 sector as the best means of overcoming technical  
23 challenges that span multiple research and engineer-  
24 ing disciplines and of gaining better leverage from  
25 limited Federal research funds.

1 (c) ELIGIBLE ENTITIES.—

2 (1) IN GENERAL.—To be eligible for a grant,  
3 contract, or assistance under this section, an appli-  
4 cant shall be—

5 (A) an institution of higher education;

6 (B) a national laboratory;

7 (C) a Federal research agency;

8 (D) a State research agency;

9 (E) a private sector entity;

10 (F) a nonprofit organization; or

11 (G) a consortium of 2 or more entities de-  
12 scribed in subparagraphs (A) through (E).

13 (2) ADMINISTRATION.—After consultation with  
14 the Board, the points of contact, on behalf of the  
15 Board, shall—

16 (A) publish annually 1 or more joint re-  
17 quests for proposals for grants, contracts, and  
18 assistance under this section;

19 (B) establish a priority in grants, con-  
20 tracts, and assistance under this section for re-  
21 search that—

22 (i) demonstrates potential for signifi-  
23 cant advances in biomass processing;

24 (ii) demonstrates potential to substan-  
25 tially impact scale-sensitive national objec-

1 tives such as sustainable resource supply,  
2 reduced greenhouse gas emissions,  
3 healthier rural economies, and improved  
4 strategic security and trade balances; and

5 (iii) would improve knowledge of im-  
6 portant biomass processing systems that  
7 demonstrate potential for commercial ap-  
8 plications;

9 (C) require that grants, contracts, and as-  
10 sistance under this section be awarded competi-  
11 tively, on the basis of merit, after the establish-  
12 ment of procedures that provide for scientific  
13 peer review by an independent panel of sci-  
14 entific and technical peers; and

15 (D) give preference to applications that—

16 (i) involve a consortia of experts from  
17 multiple institutions; and

18 (ii) encourage the integration of dis-  
19 ciplines and application of the best tech-  
20 nical resources.

21 (d) USES OF GRANTS, CONTRACTS, AND ASSIST-  
22 ANCE.—A grant, contract, or assistance under this section  
23 may be used to conduct—

24 (1) research on process technology for over-  
25 coming the recalcitrance of biomass, including re-

1 search on key mechanisms, advanced technologies,  
2 and demonstration test beds for—

3 (A) feedstock pretreatment and hydrolysis  
4 of cellulose and hemicellulose, including new  
5 technologies for—

6 (i) enhanced sugar yields;

7 (ii) lower overall chemical use;

8 (iii) less costly materials; and

9 (iv) cost reduction;

10 (B) development of novel organisms and  
11 other approaches to substantially lower the cost  
12 of cellulase enzymes and enzymatic hydrolysis,  
13 including dedicated cellulase production and  
14 consolidated bioprocessing strategies; and

15 (C) approaches other than enzymatic hy-  
16 drolysis for overcoming the recalcitrance of cel-  
17 lulosic biomass;

18 (2) research on technologies for diversifying the  
19 range of products that can be efficiently and cost-  
20 competitively produced from biomass, including re-  
21 search on—

22 (A) metabolic engineering of biological sys-  
23 tems (including the safe use of genetically  
24 modified crops) to produce novel products, espe-  
25 cially commodity products, or to increase prod-

1           uct selectivity and tolerance, with a research  
2           priority on the development of biobased indus-  
3           trial products that can compete in performance  
4           and cost with fossil-based products;

5           (B) catalytic processing to convert inter-  
6           mediates of biomass processing into products of  
7           interest;

8           (C) separation technologies for cost-effec-  
9           tive product recovery and purification;

10          (D) approaches other than metabolic engi-  
11          neering and catalytic conversion of intermedi-  
12          ates of biomass processing;

13          (E) advanced biomass gasification tech-  
14          nologies, including coproduction of power and  
15          heat as an integrated component of biomass  
16          processing, with the possibility of generating ex-  
17          cess electricity for sale; and

18          (F) related research in advanced turbine  
19          and stationary fuel cell technology for produc-  
20          tion of electricity from biomass; and

21          (3) research aimed at ensuring the environ-  
22          mental performance and economic viability of  
23          biobased industrial products and their raw material  
24          input of biomass when considered as an integrated  
25          system, including research on—

1 (A) the analysis of, and strategies to en-  
2 hance, the environmental performance and sus-  
3 tainability of biobased industrial products, in-  
4 cluding research on—

5 (i) accurate measurement and analysis  
6 of greenhouse gas emissions, carbon se-  
7 questration, and carbon cycling in relation  
8 to the life cycle of biobased industrial prod-  
9 ucts and feedstocks with respect to other  
10 alternatives;

11 (ii) evaluation of current and future  
12 biomass resource availability;

13 (iii) development and analysis of land  
14 management practices and alternative bio-  
15 mass cropping systems that ensure the en-  
16 vironmental performance and sustainability  
17 of biomass production and harvesting;

18 (iv) land, air, water, and biodiversity  
19 impacts of large-scale biomass production,  
20 processing, and use of biobased industrial  
21 products relative to other alternatives; and

22 (v) biomass gasification and combus-  
23 tion to produce electricity;

1 (B) the analysis of, and strategies to en-  
2 hance, the economic viability of biobased indus-  
3 trial products, including research on—

4 (i) the cost of the required process  
5 technology;

6 (ii) the impact of coproducts, includ-  
7 ing food, animal feed, and fiber, on  
8 biobased industrial product price and  
9 large-scale economic viability; and

10 (iii) interactions between an emergent  
11 biomass refining industry and the petro-  
12 chemical refining infrastructure; and

13 (C) the field and laboratory research re-  
14 lated to feedstock production with the inter-  
15 related goals of enhancing the sustainability, in-  
16 creasing productivity, and decreasing the cost of  
17 biomass processing, including research on—

18 (i) altering biomass to make biomass  
19 easier and less expensive to process;

20 (ii) existing and new agricultural and  
21 energy crops that provide a sustainable re-  
22 source for conversion to biobased industrial  
23 products while simultaneously serving as a  
24 source for coproducts such as food, animal  
25 feed, and fiber;

1 (iii) improved technologies for harvest,  
2 collection, transport, storage, and handling  
3 of crop and residue feedstocks; and

4 (iv) development of economically via-  
5 ble cropping systems that improve the con-  
6 servation and restoration of marginal land;

7 or

8 (4) Any research and development in tech-  
9 nologies or processes determined by the Secretary of  
10 Agriculture and the Secretary of Energy, acting  
11 through their respective points of contact and in  
12 consultation with the Board, to be consistent with  
13 the purposes described in subsection (b) and prior-  
14 ities described in subsection (c)(2)(B).

15 (e) TECHNOLOGY AND INFORMATION TRANSFER TO  
16 AGRICULTURAL USERS.—

17 (1) IN GENERAL.—The Administrator of the  
18 Cooperative State Research, Education, and Exten-  
19 sion Service and the Chief of the Natural Resources  
20 Conservation Service shall ensure that applicable re-  
21 search results and technologies from the Initiative  
22 are adapted, made available, and disseminated  
23 through their respective services, as appropriate.

24 (2) REPORT.—Not later than 5 years after the  
25 date of enactment of this title, the Administrator of

1 the Cooperative State Research, Education, and Ex-  
2 tension Service and the Chief of the Natural Re-  
3 sources Conservation Service shall report to the com-  
4 mittees of Congress with jurisdiction over the Initia-  
5 tive on the activities conducted by the services under  
6 this subsection.

7 (f) AUTHORIZATION OF APPROPRIATIONS.—In addi-  
8 tion to funding provided for biomass research and develop-  
9 ment under the general authority of the Secretary of En-  
10 ergy to conduct research and development and demonstra-  
11 tion programs (which may also be used to carry out this  
12 title), there are also authorized to be appropriated  
13 \$49,000,000 to the Department of Agriculture for each  
14 of the fiscal years 2000 through 2005 to carry out this  
15 title.

16 **SEC. 108. ADMINISTRATIVE SUPPORT AND FUNDS.**

17 (a) IN GENERAL.—To the extent administrative sup-  
18 port and funds are not provided by other agencies under  
19 subsection (b), the Secretary of Energy and the Secretary  
20 of Agriculture may provide such administrative support  
21 and funds of the Department of Energy and the Depart-  
22 ment of Agriculture to the Board and the Advisory Com-  
23 mittee as are necessary to enable the Board and the Advi-  
24 sory Committee to carry out this title.

1 (b) OTHER AGENCIES.—The heads of the agencies  
2 referred to, or appointed under, paragraphs (3) and (4)  
3 of section 105(b) may, and are encouraged to, provide ad-  
4 ministrative support and funds of their respective agencies  
5 to the Board and the Advisory Committee.

6 **SEC. 109. REPORTS.**

7 For each fiscal year that funds are made available  
8 to carry out this title, the Secretary of Agriculture and  
9 the Secretary of Energy shall jointly transmit to Congress  
10 a detailed report on—

11 (1) the status and progress of the Initiative, in-  
12 cluding a certification from the Board that funds  
13 authorized for the Initiative are distributed and used  
14 in a manner that is consistent with the goals of the  
15 Initiative; and

16 (2) the general status of cooperation and re-  
17 search efforts carried out by each Secretary with re-  
18 spect to sustainable fuels, chemicals, and electricity  
19 derived from biomass, including a certification from  
20 the Board that the points of contact are funding  
21 proposals that are selected on the basis of merit, as  
22 determined by an independent panel of scientific and  
23 technical peers.

1 **SEC. 110. SUNSET.**

2 This title and the authority conferred by this title  
3 shall terminate on December 31, 2005.

4 **TITLE II—AUTHORIZATION OF**  
5 **APPROPRIATIONS FOR ETH-**  
6 **ANOL RESEARCH PILOT**  
7 **PLANT.**

8 **SEC. 201. AUTHORIZATION OF APPROPRIATIONS.**

9 There are authorized to be appropriated to construct  
10 a Department of Agriculture corn-based ethanol research  
11 pilot plant a total of \$14,000,000 for fiscal year 2000 and  
12 subsequent fiscal years.

Passed the Senate February 29, 2000.

Attest:

*Secretary.*

106TH CONGRESS  
2D SESSION

**S. 935**

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**AN ACT**

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