

106TH CONGRESS
2D SESSION

S. 2336

To authorize funding for networking and information technology research and development at the Department of Energy for fiscal years 2001 through 2005, and for other purposes.

IN THE SENATE OF THE UNITED STATES

MARCH 30, 2000

Mr. BINGAMAN (for himself, Mr. CRAIG, Mr. SCHUMER, and Mrs. MURRAY) introduced the following bill; which was read twice and referred to the Committee on Energy and Natural Resources

A BILL

To authorize funding for networking and information technology research and development at the Department of Energy for fiscal years 2001 through 2005, 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 “Networking and Informa-
5 tion Technology Research and Development for Depart-
6 ment of Energy Missions Act”.

7 **SEC. 2. FINDINGS.**

8 The Congress finds the following:

1 (1) The Department of Energy, especially in its
2 Office of Science research programs, has played a
3 key role in the development of high performance
4 computing, networking and information technology.
5 Important contributions by the Department include
6 pioneering the concept of remote, interactive access
7 to supercomputers; developing the first interactive
8 operating system for supercomputers; establishing
9 the first national supercomputer center; laying the
10 mathematical foundations for high performance com-
11 puting with numerical linear algebra libraries now
12 used by thousands of researchers worldwide; leading
13 the transition to massively parallel supercomputing
14 by developing software for parallel virtual machines;
15 and contributing to the development of the Internet
16 with software that is now used in the TCP/IP sys-
17 tem responsible for routing information packages to
18 their correct destinations.

19 (2) The Department of Energy's contributions
20 to networking and information technology have
21 played a key role in the Department's ability to ac-
22 complish its statutory mission in the past, in par-
23 ticular through the development of remote access to
24 its facilities. Continued accomplishments in these

1 areas will be needed to continue to carry out these
2 missions in the future.

3 (3) The Department of Energy, through its
4 portfolio of unique facilities for scientific research
5 including high energy and nuclear laboratories, neu-
6 tron source and synchrotron facilities, and com-
7 puting and communications facilities such as the
8 National Energy Research Scientific Computing
9 Center and Energy Sciences Network, has a unique
10 and vital role in advancing the scientific research,
11 networking and information technology infrastruc-
12 ture for the nation.

13 (4) The challenge of remote creation of, access
14 to, visualization of, and simulation with petabyte-
15 scale (1,000,000 gigabyte) data sets generated by
16 experiments at DOE scientific facilities is common
17 to a number of different scientific disciplines. Effec-
18 tive treatment of these problems will likely require
19 collaborative efforts between the university, national
20 laboratory and industrial sectors and involve close
21 interactions of the broader scientific community with
22 computational, networking and information sci-
23 entists.

24 (5) The solution of contemporary challenges
25 facing the Department of Energy in developing and

1 using high-performance computing, networking,
2 communications, and information technologies will
3 be of immense value to the entire nation. Potential
4 benefits include: effective earth, climate, and energy
5 systems modeling; understanding aging and fatigue
6 effects in materials crucial to energy systems; pro-
7 moting energy-efficient chemical production through
8 rational catalyst design; predicting the structure and
9 functions of the proteins coded by DNA and their
10 response to chemical and radiation damage; design-
11 ing more efficient combustion systems; and under-
12 standing turbulent flow in plasmas in energy and
13 advanced materials applications.

14 **SEC. 3. DEPARTMENT OF ENERGY PROGRAMS.**

15 (a) HIGH-PERFORMANCE COMPUTING ACT PRO-
16 GRAM.—Section 203(a) of the High-Performance Com-
17 puting Act of 1991 (15 U.S.C. 5523(a)) is amended—

- 18 (1) in paragraph (3), by striking “and”;
- 19 (2) in paragraph (4), by striking the period and
20 inserting “; and”; and
- 21 (3) by adding after paragraph (4) the following:
- 22 “(5) conduct an integrated program of re-
23 search, development, and provision of facilities to de-
24 velop and deploy to scientific and technical users the
25 high-performance computing and collaboration tools

1 needed to fulfill the statutory missions of the De-
2 partment of Energy.”.

3 (b) COMPUTATION, NETWORKING AND INFORMATION
4 TECHNOLOGY COLLABORATIVE PROGRAM.—Within the
5 funds authorized under this Act, the Secretary shall pro-
6 vide up to \$25,000,000 in each fiscal year for a program
7 of collaborative projects involving remote access to high-
8 performance computing assets or remote experimentation
9 over network facilities. The program shall give priority to
10 cross-disciplinary projects that involve more than one of-
11 fice within the Office of Science of the Department of En-
12 ergy or that couple the Office of Science with Depart-
13 mental energy technology offices.

14 (c) PROGRAM LINE AUTHORITY.—To the extent con-
15 sistent with their national security mission, laboratories
16 administered by the National Nuclear Security Adminis-
17 tration may compete for funding authorized in this Act
18 to the same extent and on the same terms as other De-
19 partment of Energy offices and laboratories. Such funding
20 at laboratories administered by the National Nuclear Se-
21 curity Administration shall be under the direct pro-
22 grammatic control of the sponsoring program for the
23 funding in the Department of Energy.

24 (d) MERIT REVIEW.—All grants, contracts, coopera-
25 tive agreements, or other financial assistance awarded

1 under programs authorized in this Act shall be made only
2 after being subject to independent merit review by the De-
3 partment of Energy.

4 **SEC. 4. AUTHORIZATION OF APPROPRIATIONS.**

5 There are authorized to be appropriated to the Sec-
6 retary of Energy for the purposes of carrying out section
7 203 of the High-Performance Computing Act of 1991 (15
8 U.S.C. 5523) and this Act \$190,000,000 for fiscal year
9 2001; \$250,000,000 for fiscal year 2002; \$285,000,000
10 for fiscal year 2003; \$300,000,000 for fiscal year 2004;
11 and \$300,000,000 for fiscal year 2005.

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