

117TH CONGRESS  
1ST SESSION

**S.** \_\_\_\_\_

To establish an open network architecture testbed at the Institute for Telecommunication Sciences of the National Telecommunications and Information Administration to develop and demonstrate network architectures and applications, and for other purposes.

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IN THE SENATE OF THE UNITED STATES

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Mr. WICKER (for himself and Mr. HICKENLOOPER) introduced the following bill; which was read twice and referred to the Committee on

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**A BILL**

To establish an open network architecture testbed at the Institute for Telecommunication Sciences of the National Telecommunications and Information Administration to develop and demonstrate network architectures and applications, 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 “Telecommunications  
5 Supply Chain Diversity Promotion Act”.

6 **SEC. 2. OPEN NETWORK ARCHITECTURE.**

7 (a) OPEN NETWORK ARCHITECTURE TESTBED.—

1 (1) DEFINITIONS.—In this subsection—

2 (A) the term “Applied Research Open-  
3 RAN testbed” means the testbed established  
4 under paragraph (2);

5 (B) the term “Assistant Secretary” means  
6 the Assistant Secretary of Commerce for Com-  
7 munications and Information; and

8 (C) the term “NTIA” means the National  
9 Telecommunications and Information Adminis-  
10 tration.

11 (2) ESTABLISHMENT.—The Assistant Secretary  
12 shall establish an applied research open network ar-  
13 chitecture testbed at the Institute for Telecommuni-  
14 cation Sciences of the NTIA to develop and dem-  
15 onstrate network architectures and applications,  
16 equipment integration and interoperability at scale,  
17 including—

18 (A) Open Radio Access Network (com-  
19 monly known as “Open-RAN”) technology;

20 (B) Virtualized Radio Access Network  
21 (commonly known as “vRAN”) technology; and

22 (C) cloud native technologies that replicate  
23 telecommunications hardware as software-based  
24 virtual network elements and functions.

1           (3) FOCUS; CONSIDERATIONS.—In establishing  
2           the Applied Research Open-RAN testbed pursuant  
3           to this section, the Assistant Secretary shall ensure  
4           that such testbed evaluates issues related to deploy-  
5           ment and operation of open network architectures in  
6           rural areas.

7           (4) COOPERATIVE RESEARCH AND DEVELOP-  
8           MENT AGREEMENTS.—The Assistant Secretary shall  
9           enter into cooperative research and development  
10          agreements as appropriate to obtain equipment, de-  
11          vices, and expertise for the Applied Research Open-  
12          RAN testbed, in accordance with section 12 of the  
13          Stevenson-Wydler Technology Innovation Act of  
14          1980 (15 U.S.C. 3710a).

15          (5) PRIVATE SECTOR CONTRIBUTIONS.—The  
16          Assistant Secretary may accept private contributions  
17          to the Applied Research Open-RAN testbed in the  
18          form of network equipment or devices for testing  
19          purposes.

20          (6) PARTNERSHIP WITH GOVERNMENT ENTI-  
21          TIES.—

22                  (A) ESTABLISHMENT.—In establishing the  
23                  Applied Research Open-RAN testbed, the As-  
24                  sistant Secretary shall—

1 (i) consult with the Federal Commu-  
2 nications Commission, including with re-  
3 spect to ongoing work by the Commission  
4 to develop other testbeds, including private  
5 sector testbeds, related to Open-RAN tech-  
6 nologies; and

7 (ii) ensure that the work on the  
8 testbed is coordinated with the responsibil-  
9 ities of the Assistant Secretary under any  
10 relevant memorandum of understanding  
11 with the Federal Communications Commis-  
12 sion and the National Science Foundation  
13 related to spectrum.

14 (B) OPERATIONS.—In operating the Ap-  
15 plied Research Open-RAN testbed, the Assist-  
16 ant Secretary shall, in consultation with the  
17 Federal Communications Commission, partner  
18 with—

19 (i) the First Responder Network Au-  
20 thority of the NTIA (also known as  
21 “FirstNet”) and the Public Safety Com-  
22 munications Research Division of the Na-  
23 tional Institute of Standards and Tech-  
24 nology to examine use cases and applica-

1                   tions for Open-RAN technologies in a pub-  
2                   lic safety network;

3                   (ii) other Federal agencies, as appro-  
4                   priate to examine use cases and applica-  
5                   tions for Open-RAN technologies in other  
6                   areas of interest to such agencies; and

7                   (iii) international partners, as appro-  
8                   priate.

9                   (7) STAKEHOLDER INPUT.—The Assistant Sec-  
10                  retary shall seek input from stakeholders regarding  
11                  the establishment and operation of the Applied Re-  
12                  search Open-RAN testbed.

13                  (8) IMPLEMENTATION DEADLINE.—Not later  
14                  than 180 days after the date of enactment of this  
15                  Act, the Assistant Secretary shall—

16                         (A) define metrics and parameters for the  
17                         Applied Research Open-RAN testbed, including  
18                         functionality, project configuration and capac-  
19                         ity, performance, security requirements, and  
20                         quality assurance;

21                         (B) adopt any rules as necessary, in con-  
22                         sultation with the Federal Communications  
23                         Commission; and

1 (C) begin the development of the Applied  
2 Research Open-RAN testbed, including seeking  
3 stakeholder input as required by paragraph (7).

4 (9) REPORT.—Not later than 1 year after the  
5 date of enactment of this Act, the Assistant Sec-  
6 retary shall submit to the Committee on Commerce,  
7 Science and Transportation of the Senate and the  
8 Committee on Energy and Commerce of the House  
9 of Representatives a report on the findings of the  
10 testbed and any recommendations for additional leg-  
11 islative or regulatory actions relating to the work of  
12 the testbed.

13 (10) AUTHORIZATION OF APPROPRIATIONS.—

14 (A) IN GENERAL.—There are authorized to  
15 be appropriated for the administration of the  
16 Applied Research Open-RAN testbed  
17 \$20,000,000 for fiscal year 2022, to remain  
18 available until expended.

19 (B) RULE OF CONSTRUCTION.—Nothing in  
20 paragraph (6) shall be construed to obligate  
21 FirstNet or any other Federal entity to pay for  
22 the cost of the Applied Research Open-RAN  
23 testbed created under this section in the ab-  
24 sence of the appropriation of amounts under  
25 this paragraph.

1 (C) AUTHORIZATION FOR VOLUNTARY SUP-  
2 PORT.—A Federal entity, including FirstNet,  
3 may voluntarily enter into an agreement with  
4 NTIA to provide monetary or nonmonetary sup-  
5 port for the Applied Research Open-RAN  
6 testbed.

7 (b) PARTICIPATION IN STANDARDS-SETTING BOD-  
8 IES.—

9 (1) DEFINITIONS.—In this section—

10 (A) the term “Assistant Secretary” means  
11 the Assistant Secretary of Commerce for Com-  
12 munications and Information;

13 (B) the term “eligible standards *-setting*  
14 body”—

15 (i) means a standards-setting body,  
16 participation in which may be funded by a  
17 grant awarded under paragraph (2), as de-  
18 termined by the Assistant Secretary; and

19 (ii) includes—

20 (I) the 3rd Generation Partner-  
21 ship Project (commonly known as  
22 “3GPP”);

23 (II) the Alliance for Tele-  
24 communications Industry Solutions  
25 (commonly known as “ATIS”);

1 (III) the International Tele-  
2 communications Union (commonly  
3 known as “ITU”);

4 (IV) the Institute for Electrical  
5 and Electronics Engineers (commonly  
6 known as “IEEE”);

7 (V) the World  
8 Radiocommunications Conferences  
9 (commonly known as the “WRC”) of  
10 the ITU;

11 (VI) the Internet Engineering  
12 Task Force (commonly known as the  
13 “IETF”);

14 (VII) the International Organiza-  
15 tion for Standardization (commonly  
16 known as the “ISO”) and the Inter-  
17 national Electrotechnical Commission  
18 (commonly known as the “IEC”);

19 (VIII) the O-RAN Alliance;

20 (IX) the Telecommunications In-  
21 dustry Association (commonly known  
22 as “TIA”); and

23 (X) any other standards-setting  
24 body identified under paragraph (4);

1 (C) the term “Secretary” means the Sec-  
2 retary of Commerce; and

3 (D) the term “standards-setting body”  
4 means an international body that develops the  
5 standards for open network architecture tech-  
6 nologies.

7 (2) GRANT PROGRAM.—

8 (A) IN GENERAL.—The Secretary, in col-  
9 laboration with the Assistant Secretary, shall  
10 award grants to private sector entities based in  
11 the United States to participate in eligible  
12 standards-setting bodies.

13 (B) PRIORITIZATION.—The Secretary shall  
14 prioritize grants awarded under this section to  
15 private sector entities that would not otherwise  
16 be able to participate in eligible standards-set-  
17 ting bodies without the grant.

18 (3) GRANT CRITERIA.—Not later than 180 days  
19 after the date on which amounts are appropriated  
20 under paragraph (5), the Secretary, in collaboration  
21 with the Assistant Secretary, shall establish criteria  
22 for the grants awarded under paragraph (2).

23 (4) CONSULTATION WITH FEDERAL COMMU-  
24 NICATIONS COMMISSION.—The Secretary shall con-

1 sult with the Federal Communications Commission  
2 in—

3 (A) determining criteria for the grants  
4 awarded under paragraph (2); and

5 (B) determining which standards-setting  
6 bodies, if any, in addition to the standards-set-  
7 ting bodies listed in paragraph (1)(B)(ii) are el-  
8 igible standards-setting bodies.

9 (5) AUTHORIZATION OF APPROPRIATIONS.—

10 (A) IN GENERAL.—There are authorized to  
11 be appropriated for grants under paragraph (2)  
12 \$30,000,000 in total for fiscal years 2022  
13 through 2025, to remain available until ex-  
14 pended.

15 (B) ADMINISTRATIVE COSTS.—The Sec-  
16 retary may use not more than 2 percent of any  
17 funds appropriated under this paragraph for  
18 the administration of the grant program estab-  
19 lished under this subsection.