

Calendar No. 584

116TH CONGRESS }
2d Session }

SENATE

{ REPORT
116-291

GLOBAL LEADERSHIP IN ADVANCED
MANUFACTURING ACT OF 2019

R E P O R T

OF THE

COMMITTEE ON COMMERCE, SCIENCE, AND
TRANSPORTATION

ON

S. 1427



NOVEMBER 16, 2020.—Ordered to be printed

U.S. GOVERNMENT PUBLISHING OFFICE

19-010

WASHINGTON : 2020

SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

ONE HUNDRED SIXTEENTH CONGRESS

SECOND SESSION

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GLOBAL LEADERSHIP IN ADVANCED MANUFACTURING ACT OF 2019

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Mr. WICKER, from the Committee on Commerce, Science, and
Transportation, submitted the following

R E P O R T

[To accompany S. 1427]

[Including cost estimate of the Congressional Budget Office]

The Committee on Commerce, Science, and Transportation, to which was referred the bill (S. 1427) to amend the National Institute of Standards and Technology Act to improve the Network for Manufacturing Innovation Program, and for other purposes, having considered the same, reports favorably thereon with an amendment (in the nature of a substitute) and recommends that the bill (as amended) do pass.

PURPOSE OF THE BILL

S. 1427 would amend the National Institute of Standards and Technology (NIST) Act to make improvements to the Network for Manufacturing Innovation Program, known as Manufacturing USA, to bolster American manufacturing competitiveness by accelerating innovation in industrially relevant manufacturing technologies and sustaining support for workforce development. The bill would strengthen Manufacturing USA by authorizing funds for centers, including those not established with Federal funds, to carry out program-wide activities and allow centers within the program to renew their funding if they are meeting performance standards. The bill would also reauthorize and strengthen the Re-

gional Innovation Strategies (RIS) Program¹ administered by the U.S. Economic Development Administration (EDA).

BACKGROUND AND NEEDS

Manufacturing has played a critical role in American economic productivity and national security since the Industrial Revolution. As of March 2019, manufacturing made up 8.5 percent of U.S. employment² and 11.4 percent of U.S. gross domestic product (GDP)³ but drives 35 percent of productivity growth, 60 percent of exports,⁴ and 70 percent of private-sector research and development (R&D).⁵

The 21st century has seen dramatic changes in U.S. manufacturing as competitive pressures and globalization have driven the manufacturing sector to make investments in improving productivity overseas. The United States continued to lead the world in innovative R&D, yet many U.S. research discoveries were applied in other countries because transitioning from lab to production became financially prohibitive for most of the U.S. private sector. As a result, manufacturing employment fell by 5.6 million from December 2000 to December 2010.⁶ By 2015, the United States had fallen behind China as the second largest manufacturing economy in the world.⁷

History has shown that rebuilding a robust domestic manufacturing sector will rely on the presence of innovative new industries that create high value for their markets.⁸ A critical component to this development is advancement in manufacturing technology, coupled with a skilled manufacturing workforce able to fulfill requirements of a new, innovative manufacturing sector.

Recognizing the interdependence between manufacturing and innovation in the U.S. economy, Congress passed the Revitalize American Manufacturing and Innovation (RAMI) Act in 2014 to establish a Network for Manufacturing Innovation Program coordinated by NIST under the Department of Commerce. The program, also known as Manufacturing USA, is designed to improve U.S. manufacturing competitiveness and increase production of predominantly U.S. manufactured goods, stimulate U.S. leadership in advanced manufacturing research, innovation, and technology, accel-

¹In February 2020, after S. 1427 was ordered to be reported favorably by the Committee, the RIS Program was renamed the Build to Scale (B2S) Program by the U.S. Economic Development Administration (EDA). See EDA, “Spotlight: EDA Launches the Build to Scale Program, a Redesign of Its Regional Innovation Strategies Program,” Feb. 2020 (<https://www.eda.gov/news/blogs/2020/02/01/spotlight.htm>) (accessed Sept. 29, 2020).

²U.S. Department of Labor, Bureau of Labor Statistics, data on employment, hours, and earnings from the current employment statistics survey (national) (<https://data.bls.gov/timeseries/CES0000000001>) (accessed Apr. 17, 2020).

³U.S. Department of Commerce, Bureau of Economic Analysis, “Interactive Data: Industry Economic Account Data: GDP by Industry” (<https://apps.bea.gov/iTable/iTable.cfm?reqid=150&step=2&isuri=1&categories=gdp&xind>) (accessed Sep. 25, 2020).

⁴U.S. Department of Commerce, International Trade Administration, “Product Profiles of U.S. Merchandise Trade with a Selected Market” (<http://tse.export.gov/tse/TSEReports.aspx?DATA=NTD&39.1183579&-77.211762&false>) (accessed Sep. 25, 2020).

⁵Sree Ramaswamy et al., McKinsey Global Institute, “Making It in America: Revitalizing US Manufacturing,” Nov. 13, 2017 (<https://www.mckinsey.com/featured-insights/americas/making-it-in-america-revitalizing-us-manufacturing>) (accessed Apr. 17, 2020).

⁶U.S. Department of Labor, Bureau of Labor Statistics, data on employment, hours, and earnings from the current employment statistics survey (national) (<https://data.bls.gov/timeseries/CES3000000001>) (accessed Apr. 17, 2020).

⁷NIST, *2017 Annual Report and Summary of Institute Activities* (<https://nvlpubs.nist.gov/nistpubs/ams/NIST.AMS.600-3.pdf>) (accessed Apr. 16, 2020).

⁸Thomas W. Eagar and Christopher Musso, “Innovation and U.S. Manufacturing,” in *New Directions in Manufacturing*, The National Academies Press, 2004 (<https://www.nap.edu/read/11024/chapter/8>) (accessed Apr. 17, 2020).

erate the development of an advanced manufacturing workforce, and create and preserve jobs.

In the years since the RAMI Act was enacted, Manufacturing USA has grown rapidly. According to the NIST 2017 report to Congress, the number of participating institutes increased to 14, and the program leveraged Federal investment by matching \$1 billion of Federal funding with an additional \$2 billion from industry, academia, States, and other non-Federal funding sources.⁹ The report identified continuing to grow the network of institutes, developing manufacturing technology and avenues for technology transfer, and developing education and workforce development programs as priorities in the future.¹⁰

EDA's Office of Innovation and Entrepreneurship administers the RIS grant program. The RIS program was authorized as a part of the Regional Innovation Program under section 27 of the Stevenson-Wydler Technology Innovation Act of 1980.¹¹ According to the EDA, RIS grants are intended to build regional capacity to translate innovations into jobs by supporting entrepreneurs in the proof-of-concept and commercialization phases and by providing operational support for organizations that provide essential early-stage risk capital to entrepreneurs.¹²

SUMMARY OF PROVISIONS

S. 1427 would establish Manufacturing USA as a recognized alternative name for the Network of Manufacturing Innovation Program. The bill would create procedures for renewing funding for Manufacturing USA centers if they meet performance standards established by the Secretary of Commerce. The Secretary would conduct an assessment of each center after the initial award of funding and every 5 years thereafter. The bill would clarify the specific Federal departments with which the Manufacturing USA National Program Office may coordinate. The Secretary would also be directed to increase the number of centers participating in the Manufacturing USA program.

S. 1427 would also extend the authorization of funding for the Regional Innovation Program through fiscal year 2024. The bill would also clarify the purpose and focus of the Program and establish additional oversight and accountability requirements.

LEGISLATIVE HISTORY

S. 1427, the Global Leadership in Advanced Manufacturing Act of 2019, was introduced on May 13, 2019, by Senator Coons (for himself and Senators Gardner, Gillibrand, Tillis, Hassan, Peters, Moran, and Rubio) and was referred to the Committee on Commerce, Science, and Transportation of the Senate. Senators Klobuchar and Collins are additional cosponsors. On July 10, 2019, the Committee met in open Executive Session and, by voice vote, ordered S. 1427 reported favorably with an amendment (in the nature of a substitute).

⁹NIST, *2017 Annual Report and Summary of Institute Activities* (<https://nvlpubs.nist.gov/nistpubs/ams/NIST.AMS.600-3.pdf>) (accessed Apr. 16, 2020).

¹⁰Id.

¹¹Codified at 15 U.S.C. 3722.

¹²U.S. Economic Development Administration, *Regional Innovation Strategies (RIS)* (<https://www.eda.gov/oie/buildtoscale/>) (accessed Sep. 25, 2020).

A companion bill, H.R. 2397, the American Manufacturing Leadership Act, was introduced on April 30, 2019, by Representative Stevens [D–MI] (for himself and Representatives Balderson [R–OH], Kennedy [D–MA], Reed [R–NY], Johnson [D–TX], and Gonzalez [R–OH]) and was referred to the Committee on Science, Space, and Technology in the House of Representatives. There are 17 additional cosponsors. On June 19, 2019, H.R. 2397 was reported favorably, as amended, and on July 23, 2019, that bill was passed, by voice vote, in the House of Representatives. On July 24, 2019, H.R. 2397 was referred to the Committee on Commerce, Science, and Transportation of the Senate.

ESTIMATED COSTS

In accordance with paragraph 11(a) of rule XXVI of the Standing Rules of the Senate and section 403 of the Congressional Budget Act of 1974, the Committee provides the following cost estimate, prepared by the Congressional Budget Office:

S. 1427, Global Leadership in Advanced Manufacturing Act of 2019			
As ordered reported by the Senate Committee on Commerce, Science, and Transportation on July 10, 2019			
By Fiscal Year, Millions of Dollars	2019	2019-2024	2019-2029
Direct Spending (Outlays)	0	0	0
Revenues	0	0	0
Deficit Effect	0	0	0
Spending Subject to Appropriation (Outlays)	0	-85	not estimated
Statutory pay-as-you-go procedures apply?	No	Mandate Effects	
Increases on-budget deficits in any of the four consecutive 10-year periods beginning in 2030?	No	Contains intergovernmental mandate?	No
		Contains private-sector mandate?	No

Bill summary: S. 1427 would amend the authorization for Manufacturing USA, a federal grant program administered by the National Institute of Standards and Technology (NIST) that funds a national network of advanced manufacturing institutes. The bill also would eliminate the authority of the Department of Energy (DOE) to transfer appropriated funds to NIST. Finally, the bill would amend the authorization for the Regional Innovation Program administered by the Economic Development Administration (EDA).

Federal Costs: On net, CBO estimates that the bill would increase authorized appropriations by \$15 million over the 2020-2024 period. Assuming appropriation actions consistent with legislative language, CBO estimates that implementing the bill would reduce outlays for those authorizations by \$85 million over the same period. The costs of the legislation (as detailed in Table 1) fall within budget function 370 (commerce and housing credit).

Current law authorizes the appropriation of \$5 million a year through 2024 for NIST to carry out the Manufacturing USA program. S. 1427 would authorize whatever amounts are necessary for

that program each year through 2030. The bill would require NIST to implement and enforce more rigorous metrics-based performance standards, carry out new pilot programs, develop best practices for network membership agreements, and perform other activities not required under current law. Using information from the agency, CBO estimates that NIST would need an additional \$3 million each year through 2024 to administer the Manufacturing USA program. Assuming appropriation of the estimated amounts, CBO estimates that implementing the bill would cost \$12 million over the 2020–2024 period.

TABLE 1.—ESTIMATED CHANGES IN SPENDING SUBJECT TO APPROPRIATION UNDER S. 1427

	By fiscal year, millions of dollars—						
	2019	2020	2021	2022	2023	2024	2019–2024
NIST:							
Estimated Authorization	0	3	3	3	3	3	15
Estimated Outlays	0	1	2	3	3	3	12
DOE:							
Estimated Authorization	0	–50	–50	–50	–50	–50	–250
Estimated Outlays	0	–23	–45	–50	–50	–50	–218
EDA:							
Authorization	0	50	50	50	50	50	250
Estimated Outlays	0	3	14	25	39	40	121
Total Changes:							
Estimated Authorization	0	3	3	3	3	3	15
Estimated Outlays	0	–19	–29	–22	–8	–7	–85

NIST = National Institute of Standards and Technology, DOE = Department of Energy, EDA = Economic Development Administration.

Current law also authorizes DOE to transfer a total of \$250 million in appropriated funds over the 2015-2024 period to NIST to carry out the Manufacturing USA program. To date, DOE has not used that authority. S. 1427 would eliminate that authority, which CBO estimates would reduce spending subject to appropriation by \$218 million over the 2020–2024 period, assuming appropriations to DOE through 2024 are reduced by \$250 million.

Finally, current law authorizes the appropriation of \$10 million each year through 2019 for the EDA’s Regional Innovation Program. (In 2019, the Congress provided \$23.5 million for the program.) S. 1427 would authorize the appropriation of \$50 million each year from 2020 through 2024 for that program, which CBO estimates would cost \$119 million over the 2020-2024 period, assuming appropriation of the authorized amounts.

On May 29, 2019, CBO transmitted an estimate for H.R. 2397, the American Manufacturing Leadership Act, as ordered reported by the House Committee on Science, Space, and Technology on May 1, 2019. The two bills are similar and the estimated budgetary effects for the two bills reflect differences in the legislative language.

The CBO staff contact for this estimate is David Hughes. The estimate was reviewed by H. Samuel Papenfuss, Deputy Assistant Director for Budget Analysis.

REGULATORY IMPACT STATEMENT

In accordance with paragraph 11(b) of rule XXVI of the Standing Rules of the Senate, the Committee provides the following evaluation of the regulatory impact of the legislation, as reported:

NUMBER OF PERSONS COVERED

The number of persons and businesses covered by S. 1427 should be consistent with current levels already participating in or eligible for the Manufacturing USA program and the Regional Innovation Program, though that number will increase if additional appropriations are made available for the program.

ECONOMIC IMPACT

S. 1427, as reported, is not expected to have an adverse impact on the Nation's economy. Rather, the legislation is expected to promote growth in regional manufacturing sectors by supporting pathways to commercialization for new technologies and by other means.

PRIVACY

S. 1427, as reported, is not expected to have an adverse impact on the personal privacy of individuals.

PAPERWORK

The legislation would not increase paperwork requirements for private individuals or businesses. Centers for manufacturing innovation that are subject to the new performance standards may need to create or preserve records of performance for assessment by the Secretary.

CONGRESSIONALLY DIRECTED SPENDING

In compliance with paragraph 4(b) of rule XLIV of the Standing Rules of the Senate, the Committee provides that no provisions contained in the bill, as reported, meet the definition of congressionally directed spending items under the rule.

SECTION-BY-SECTION ANALYSIS

Section 1. Short title.

This section would provide that the bill may be cited as the "Global Leadership in Advanced Manufacturing Act of 2019".

Section 2. Improvements to Network for Manufacturing Innovation Program.

Subsection (a) would establish Manufacturing USA as an alternate name for the Network for Manufacturing Innovation Program.

Subsection (b) would expand the list of potential focus areas for centers for manufacturing innovation to include: tool development for microelectronics, food manufacturing, superconductors, advanced battery technologies, robotics, advanced sensors, quantum information science, supply chain water optimization, aeronautics and advanced materials, and graphene and graphene commercialization. This subsection would also add veterans to the list of communities involved in outreach activities by a center of manufacturing innovation.

Subsection (c) allows for renewals of funding for centers. Accordingly, it also establishes a method for evaluating the performance of each center by directing the Secretary to establish standards of

performance for centers for manufacturing innovation. The Secretary would conduct an assessment of each center for manufacturing innovation receiving financial assistance after the initial award and every 5 years thereafter to determine the performance of that center based on the standards of performance this subsection would establish. This subsection would prohibit financial awards to any center for manufacturing innovation not meeting these standards of performance after a 1-year period to remedy any deficiencies.

Subsection (d) would remove funding limits by authorizing for appropriations such sums as may be necessary for the Industrial Technical Services account for each of fiscal years 2020 through 2030. This subsection would also end the authorization for Department of Energy to transfer funding for the Network for Manufacturing Innovation to the Department of Commerce.

Subsection (e) would broaden the functions of the National Program Office to include carrying out collaborative programs with the centers for manufacturing innovation, providing support for workforce development activities, and developing national certifications for advanced manufacturing workforce skills. This subsection would specify the other Federal departments with which the National Program Office may enter into memoranda of understanding. This subsection would additionally give the Secretary authority to provide financial assistance that would support partnerships between manufacturing extension centers and centers for manufacturing innovation.

Subsection (f) would extend the annual reporting requirement to 2030. This subsection would also reduce the frequency of required GAO assessments on the operation of Manufacturing USA to every 3 years.

Subsection (g) would direct the Secretary of Commerce to increase the number of centers for manufacturing innovation participating in the Network for Manufacturing Innovation Program.

Section 3. Regional Innovation Program.

Subsection (a) would establish definitions for the terms “eligible recipient”, “regional innovation initiative”, and “venture development organization”.

Subsection (b) would require the Secretary to establish a regional innovation program.

Subsection (c) would amend 15 U.S.C. 3722 to clarify the purpose and focus of the Regional Innovation Program. This subsection would allow regional innovation grants to be used for new activities, including to increase availability of private and philanthropic financing, to increase employment opportunities within the region, and to achieve quantifiable benefits to the economic performance of the region. This subsection would prohibit awardees from using grants for costs related to inducing an existing business to relocate from one geographic area to another or to offset lost revenue due to tax incentives. It also allows venture development organizations to receive these grants.

In addition to requirements in current law, subsection (d) would require applications for regional innovation grants to describe the regional innovation initiative, identify what activities it will undertake, and describe the expected outcomes of the initiative and how

progress will be measured. This subsection would require the Secretary to provide feedback to program applicants that are not awarded grants to help them improve future applications. This subsection would require the Secretary, through the EDA, to submit an annual report to Congress that explains the balance in the allocation of grants to eligible recipients under this subsection between rural and urban areas.

Subsection (e) would require the Secretary to coordinate with other Federal agencies to ensure that programs are complementary of existing programs and not duplicative.

Additionally, subsection (f) would require evaluations conducted by an independent entity to include an assessment of the program's efficacy in providing awards to geographically diverse entities.

Subsection (g) would require the Secretary to submit a report to Congress that describes the outcome of each regional innovation initiative that was completed during the previous 5 years. This reporting requirement would begin 5 years after the first grant is awarded and every 5 years thereafter and would end 5 years after the last grant recipient completes the regional innovation initiative for which the grant was awarded.

Subsection (h) would authorize the Secretary to use up to \$50 million in each of fiscal years 2020 through 2024 of funds appropriated for economic development assistance to carry out this subsection.

CHANGES IN EXISTING LAW

In compliance with paragraph 12 of rule XXVI of the Standing Rules of the Senate, changes made by the bill, as reported, to existing law at the time the bill was ordered reported, are shown as follows: (existing law proposed to be omitted is enclosed in brackets, new matter is printed in italic, and existing law in which no change is proposed is shown in roman):

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY ACT

* * * * *

[15 U.S.C. 278s]

SEC. 34. NETWORK FOR MANUFACTURING INNOVATION.

(a) ESTABLISHMENT OF NETWORK FOR MANUFACTURING INNOVATION PROGRAM.—

(1) IN GENERAL.—The Secretary shall establish within the Institute a program to be known as the “Network for Manufacturing Innovation Program” or as “*Manufacturing USA*” (referred to in this section as the “Program”).

(2) * * *

(3) * * *

(4) * * *

(b) * * *

(c) CENTERS FOR MANUFACTURING INNOVATION.—

(1) IN GENERAL.—For purposes of this section, a “center for manufacturing innovation” is a center that—

(A) * * *

(B) has a predominant focus on a manufacturing process, novel material, enabling technology, supply chain integration methodology, or another relevant aspect of advanced manufacturing, such as nanotechnology applications, advanced ceramics, photonics and optics, composites, biobased and advanced materials, flexible hybrid technologies, [and tool development for microelectronics] *tool development for microelectronics, food manufacturing, superconductors, advanced battery technologies, robotics, advanced sensors, quantum information science, supply chain water optimization, aeronautics and advanced materials, and graphene and graphene commercialization*;

(C) as determined by the Secretary, has the potential—

(i) to improve the competitiveness of United States manufacturing, including key advanced manufacturing technologies such as nanotechnology, advanced ceramics, photonics and optics, composites, biobased and advanced materials, flexible hybrid technologies, [and tool development for microelectronics] *tool development for microelectronics, food manufacturing, superconductors, advanced battery technologies, robotics, advanced sensors, quantum information science, supply chain water optimization, aeronautics and advanced materials, and graphene and graphene commercialization*;

(ii) to accelerate non-Federal investment in advanced manufacturing production capacity in the United States; or

(iii) to enable the commercial application of new technologies or industry-wide manufacturing processes; and

(D) * * *

(2) ACTIVITIES.—Activities of a center for manufacturing innovation may include the following:

(A) * * *

(B) * * *

(C) * * *

(D) Outreach and engagement with small and medium-sized manufacturing enterprises, including women [and minority], *minority, and veteran* owned manufacturing enterprises, in addition to large manufacturing enterprises.

(E) * * *

(3) ADDITIONAL CENTERS FOR MANUFACTURING INNOVATION.—

(A) IN GENERAL.—The National Additive Manufacturing Innovation Institute and other manufacturing centers formally recognized as manufacturing innovation centers pursuant to Federal law or executive actions, or under pending interagency review for such recognition as of December 16, 2014, shall be considered centers for manufacturing innovation[, but such centers shall not receive any financial assistance under subsection (d)].

(B) * * *

(d) FINANCIAL ASSISTANCE TO ESTABLISH AND SUPPORT CENTERS FOR MANUFACTURING INNOVATION.—

【(1) IN GENERAL.—In carrying out the Program, the Secretary shall award financial assistance to a person or group of persons to assist the organization in planning, establishing, or supporting a center for manufacturing innovation.】

(1) *IN GENERAL.—In carrying out the Program, the Secretary shall award financial assistance to the following:*

(A) *To a person or group of persons to assist the person or group of persons in planning, establishing, or supporting a center for manufacturing innovation.*

(B) *To a center for manufacturing innovation, including a center that was not established using Federal funds, to support workforce development, cross-center projects, and other efforts which support the purposes of the Program.*

(2) APPLICATION.—A person or group of persons seeking financial assistance 【under paragraph (1)】 *under paragraph (1)(A)* shall submit to the Secretary an application therefor at such time, in such manner, and containing such information as the Secretary may require. The application shall, at a minimum, describe the specific sources and amounts of non-Federal financial support for the center on the date financial assistance is sought, as well as the anticipated sources and amounts of non-Federal financial support during the period for which the center could be eligible for continued Federal financial assistance under this section.

(3) OPEN PROCESS.—In soliciting applications for financial assistance 【under paragraph (1)】 *under paragraph (1)(A)*, the Secretary shall ensure an open process that will allow for the consideration of all applications relevant to advanced manufacturing regardless of technology area.

(4) SELECTION.—

(A) COMPETITIVE, MERIT REVIEW.—In awarding financial assistance 【under paragraph (1)】 *under paragraph (1)(A)*, the Secretary shall use a competitive, merit review process that includes peer review by a diverse group of individuals with relevant expertise from both the private and public sectors.

(B) * * *

(C) PERFORMANCE MEASUREMENT, TRANSPARENCY, AND ACCOUNTABILITY.—For each award of financial assistance under paragraph (1), the Secretary shall—

(i) make publicly available at the time of the award a description of the bases for the award, including an explanation of the relative merits of the winning applicant as compared to other applications received, if applicable【; and】;

(ii) develop and implement metrics-based performance measures , *including appropriate measures for assessing the effectiveness of the activities funded with regards to the center's success in advancing the current state of the applicable advanced manufacturing technology area such as technology readiness level and manufacturing readiness level*, to assess the effectiveness of the activities funded【.】;

(iii) establish standards for the performance of centers for manufacturing innovation that are based on the measures developed under clause (ii); and

(iv) for each center for manufacturing innovation supported by the award, 5 years after the initial award and every 5 years thereafter until Federal funding is discontinued, conduct an assessment of the center to confirm whether the performance of the center is meeting the standards for performance established under clause (iii).

(D) COLLABORATION.—In awarding financial assistance under paragraph (1), the Secretary shall, acting through the National Program Office established under subsection (f)(1), collaborate with Federal departments and agencies whose missions contribute to or are affected by advanced manufacturing, including, as appropriate, the Department of Agriculture, the Department of Defense, the Department of Education, the Department of Energy, the Department of Labor, the Food and Drug Administration, the National Aeronautics and Space Administration, the National Institutes of Health, and the National Science Foundation.

(E) CONSIDERATIONS.—In selecting a person who submitted an application under paragraph (2) for an award of financial assistance under paragraph (1), the Secretary shall consider, at a minimum, the following:

(i) * * *

(ii) The commitment of continued financial support, advice, participation, and other contributions from non-Federal sources, to provide leverage and resources to promote a stable and sustainable business model **【without the need for long-term Federal funding】**.

(iii) Whether the financial support provided to the center for manufacturing innovation from non-Federal sources **【significantly】** exceeds the requested Federal financial assistance.

(iv) * * *

(v) How the center for manufacturing innovation will engage with small and medium-sized manufacturing enterprises, to improve the capacity of such enterprises to commercialize new processes and technologies *and to improve the domestic supply chain*.

(vi) * * *

(vii) * * *

(viii) * * *

(ix) How the center for manufacturing innovation will strengthen and leverage the *industrial, research, entrepreneurship, and other* assets of a region.

(x) * * *

(5) LIMITATIONS ON AWARDS.—

【(A) IN GENERAL.—No award of financial assistance may be made under paragraph (1) to a center of manufacturing innovation after the 7-year period beginning on the date on which the Secretary first awards financial assistance to that center under that paragraph.】

(A) PERFORMANCE DEFICIENCY.—

(i) *NOTICE OF DEFICIENCY.*—If the Secretary finds that a center for manufacturing innovation does not meet the standards for performance established under clause (iii) of paragraph (4)(C) during an assessment pursuant to clause (iv) of such paragraph, the Secretary shall notify the center of any deficiencies in the performance of the center and provide the center one year to remedy such deficiencies.

(ii) *FAILURE TO REMEDY.*—If a center for manufacturing innovation fails to remedy a deficiency identified under clause (i) or to show significant improvement in performance one year after notification of a performance deficiency identified under clause (i), the Secretary shall notify the center that the center is ineligible for further financial assistance awarded under paragraph (1).

(B) *MATCHING FUNDS AND PREFERENCES.*—The total Federal financial assistance awarded to a center of manufacturing innovation, including the financial assistance under paragraph (1), in a given year shall not exceed 50 percent of the total funding of the center in that year, except that the Secretary may make an exception in the case of **large capital facilities or equipment purchases** *satellite centers, large capital facilities, equipment purchases, workforce development, or general operations.* The Secretary shall give weighted preference to applicants seeking less than the maximum Federal share of funds allowed under this paragraph.

(C) FUNDING DECREASE.—The amount of financial assistance provided to a center of manufacturing innovation under paragraph (1) shall decrease after the second year of funding for the center, and shall continue to decrease thereafter in each year in which financial assistance is provided, unless the Secretary determines that—

(i) the center is otherwise meeting its stated goals and metrics under this section;

(ii) unforeseen circumstances have altered the center's anticipated funding; and

(iii) the center can identify future non-Federal funding sources that would warrant a temporary exemption from the limitations established in this subparagraph. **]**

(6) *USE OF FINANCIAL ASSISTANCE.*—Financial assistance awarded under paragraph (1)(B) may be used to carry out Program-wide activities directed by the Secretary, such as activities targeting workforce development.

(e) *FUNDING.*—

(1) *GENERAL RULE.*—Except as provided in paragraph (2), no funds are authorized to be appropriated by the Revitalize American Manufacturing and Innovation Act of 2014 for carrying out this section.

(2) *AUTHORITY.*—

(A) NIST INDUSTRIAL TECHNICAL SERVICES ACCOUNT.—To the extent provided for in advance by appropriations Acts, the Secretary may use not to exceed \$5,000,000 for

each of the fiscal years 2015 through 2024 to carry out this section from amounts appropriated to the Institute for Industrial Technical Services.】

(A) *NIST INDUSTRIAL TECHNICAL SERVICES ACCOUNT.*—*To the extent provided for in advance by appropriations Acts, the Secretary may use amounts appropriated to the Institute for Industrial Technical Services account to carry out this section as follows:*

(i) *For each of the fiscal years 2015 through 2019, an amount not to exceed \$5,000,000.*

(ii) *For each of fiscal years 2020 through 2030, such amounts as may be necessary to carry out this section.*

(B) *ENERGY EFFICIENCY AND RENEWABLE ENERGY ACCOUNT.*—*To the extent provided for in advance by appropriations Acts, the Secretary of Energy may transfer to the Institute not to exceed \$250,000,000 for the period encompassing fiscal years 2015 【through 2024】 through 2019 for the Secretary to carry out this section from amounts appropriated for advanced manufacturing research and development within the Energy Efficiency and Renewable Energy account for the Department of Energy.*

(f) *NATIONAL PROGRAM OFFICE.*—

(1) * * *

(2) *FUNCTIONS.*—*The functions of the National Program Office are—*

(A) * * *

(B) *to coordinate with and, as appropriate, enter into memorandums of understanding with Federal departments and agencies whose missions contribute to or are affected by advanced manufacturing, including the Department of Agriculture, the Department of Defense, the Department of Education, the Department of Energy, the Department of Labor, the Food and Drug Administration, the National Aeronautics and Space Administration, the National Institutes of Health, and the National Science Foundation, to carry out the purposes described in subsection (a)(2);*

(C) * * *

(D) * * *

(E) *to establish a clearinghouse of public information related to the activities of the Program【; and】;*

(F) *to carry out pilot programs in collaboration with the centers for manufacturing innovation such as a laboratory-embedded entrepreneurship program;*

(G) *to provide support services and funding as necessary to promote workforce development activities;*

(H) *to coordinate with centers for manufacturing innovation to develop best practices for the membership agreements and coordination of similar project solicitations;*

(I) *to collaborate with the Department of Labor, the Department of Education, industry, career and technical education schools, local community colleges, universities, and labor organizations to provide input for the development of national certifications for advanced manufacturing workforce skills in the technology areas of the centers for manufacturing innovation; and*

[(F)](J) to act as a convener of the Network.

(3) RECOMMENDATIONS.—In developing and updating the strategic plan under paragraph (2)(C), the Secretary shall solicit recommendations and advice from a wide range of stakeholders, including industry, small and medium-sized manufacturing enterprises, research universities, community colleges, *State, Tribal, and local governments*, and other relevant organizations and institutions on an ongoing basis.

(4) * * *

(5) HOLLINGS MANUFACTURING EXTENSION PARTNERSHIP.—
[The Secretary]

(A) IN GENERAL.—*The Secretary shall ensure that the National Program Office incorporates the Hollings Manufacturing Extension Partnership into Program planning to ensure that the results of the Program reach small and medium-sized entities.*

(B) LIAISONS.—

(i) IN GENERAL.—*The Secretary may provide financial assistance to a manufacturing extension center established as part of the Hollings Manufacturing Extension Partnership to support the purposes of the Program by providing services in one or more of the following areas:*

(I) *Cybersecurity awareness and support services for small- and medium-sized manufacturers.*

(II) *Assistance with workforce development.*

(III) *Technology transfer for small and medium-sized manufacturers.*

(IV) *Such other areas as the Secretary determines appropriate to support the purposes of the Program.*

(ii) SUPPORT.—*Support under clause (i) may include the designation of a liaison.*

(6) * * *

(g) REPORTING AND AUDITING.—

(1) ANNUAL REPORTS TO THE SECRETARY.—

(A) IN GENERAL.—The Secretary shall require each recipient of financial assistance [under subsection (d)(1)] *under subsection (d)(1)(A)* to annually submit a report to the Secretary that describes the finances and performance of the center for manufacturing innovation for which such assistance was awarded.

(B) * * *

(2) ANNUAL REPORTS TO CONGRESS.—

(A) IN GENERAL.—Not less frequently than once each year until [December 31, 2024] *December 31, 2030*, the Secretary shall submit a report to Congress that describes the performance of the Program during the most recent 1-year period.

(B) ELEMENTS.—Each report submitted under subparagraph (A) shall include, for the period covered by the report—

(i) * * *

(ii) * * *

(iii) an assessment of the participation in, and contributions to, the Network by any centers for manufacturing innovation not receiving financial assistance **under subsection (d)(1)** *under subsection (d)(1)(A)*; and

(iv) * * *

(3) ASSESSMENTS BY GAO.—

(A) ASSESSMENTS.—Not less frequently than once every **[2 years]** *3 years*, the Comptroller General shall submit to Congress an assessment of the operation of the Program during the most recent **[2-year]** *3-year* period.

(B) FINAL ASSESSMENT.—Not later than **[December 31, 2024]** *December 31, 2030*, the Comptroller General shall submit to Congress a final report regarding the overall success of the Program.

(C) * * *

(h) * * *

(i) * * *

* * * * *

STEVENSON-WYDLER TECHNOLOGY INNOVATION ACT OF 1980

* * * * *

[15 U.S.C. 3722]

[SEC. 27. REGIONAL INNOVATION PROGRAM.

[(a) ESTABLISHMENT.—The Secretary shall establish a regional innovation program to encourage and support the development of regional innovation strategies, including regional innovation clusters.

[(b) CLUSTER GRANTS.—

[(1) IN GENERAL.—As part of the program established under subsection (a), the Secretary may award grants on a competitive basis to eligible recipients for activities relating to the formation and development of regional innovation clusters.

[(2) PERMISSIBLE ACTIVITIES.—Grants awarded under this subsection may be used for activities determined appropriate by the Secretary, including the following:

[(A) Feasibility studies.

[(B) Planning activities.

[(C) Technical assistance.

[(D) Developing or strengthening communication and collaboration between and among participants of a regional innovation cluster.

[(E) Attracting additional participants to a regional innovation cluster.

[(F) Facilitating market development of products and services developed by a regional innovation cluster, including through demonstration, deployment, technology transfer, and commercialization activities.

[(G) Developing relationships between a regional innovation cluster and entities or clusters in other regions.

- [(H) Interacting with the public and State and local governments to meet the goals of the cluster.
- [(3) ELIGIBLE RECIPIENT DEFINED.—In this subsection, the term “eligible recipient” means—
- [(A) a State;
 - [(B) an Indian tribe;
 - [(C) a city or other political subdivision of a State;
 - [(D) an entity that—
 - [(i) is a nonprofit organization, an institution of higher education, a public-private partnership, a science or research park, a Federal laboratory, or an economic development organization or similar entity; and
 - [(ii) has an application that is supported by a State or a political subdivision of a State; or
 - [(E) a consortium of any of the entities described in subparagraphs (A) through (D).
- [(4) APPLICATION.—
- [(A) IN GENERAL.—An eligible recipient shall submit an application to the Secretary at such time, in such manner, and containing such information and assurances as the Secretary may require.
 - [(B) COMPONENTS.—The application shall include, at a minimum, a description of the regional innovation cluster supported by the proposed activity, including a description of—
 - [(i) whether the regional innovation cluster is supported by the private sector, State and local governments, and other relevant stakeholders;
 - [(ii) how the existing participants in the regional innovation cluster will encourage and solicit participation by all types of entities that might benefit from participation, including newly formed entities and those rival existing participants;
 - [(iii) the extent to which the regional innovation cluster is likely to stimulate innovation and have a positive impact on regional economic growth and development;
 - [(iv) whether the participants in the regional innovation cluster have access to, or contribute to, a well-trained workforce;
 - [(v) whether the participants in the regional innovation cluster are capable of attracting additional funds from non-Federal sources; and
 - [(vi) the likelihood that the participants in the regional innovation cluster will be able to sustain activities once grant funds under this subsection have been expended.
 - [(C) SPECIAL CONSIDERATION.—The Secretary shall give special consideration to applications from regions that contain communities negatively impacted by trade.
- [(5) SPECIAL CONSIDERATION.—The Secretary shall give special consideration to an eligible recipient who agrees to collaborate with local workforce investment area boards.

[(6) COST SHARE.—The Secretary may not provide more than 50 percent of the total cost of any activity funded under this subsection.

[(7) OUTREACH TO RURAL COMMUNITIES.—The Secretary shall conduct outreach to public and private sector entities in rural communities to encourage those entities to participate in regional innovation cluster activities under this subsection.

[(8) FUNDING.—The Secretary may accept funds from other Federal agencies to support grants and activities under this subsection.

[(c) REGIONAL INNOVATION RESEARCH AND INFORMATION PROGRAM.—

[(1) IN GENERAL.—As part of the program established under subsection (a), the Secretary shall establish a regional innovation research and information program—

[(A) to gather, analyze, and disseminate information on best practices for regional innovation strategies (including regional innovation clusters), including information relating to how innovation, productivity, and economic development can be maximized through such strategies;

[(B) to provide technical assistance, including through the development of technical assistance guides, for the development and implementation of regional innovation strategies (including regional innovation clusters);

[(C) to support the development of relevant metrics and measurement standards to evaluate regional innovation strategies (including regional innovation clusters), including the extent to which such strategies stimulate innovation, productivity, and economic development; and

[(D) to collect and make available data on regional innovation cluster activity in the United States, including data on—

[(i) the size, specialization, and competitiveness of regional innovation clusters;

[(ii) the regional domestic product contribution, total jobs and earnings by key occupations, establishment size, nature of specialization, patents, Federal research and development spending, and other relevant information for regional innovation clusters; and

[(iii) supply chain product and service flows within and between regional innovation clusters.

[(2) RESEARCH GRANTS.—The Secretary may award research grants on a competitive basis to support and further the goals of the program established under this subsection.

[(3) DISSEMINATION OF INFORMATION.—Data and analysis compiled by the Secretary under the program established in this subsection shall be made available to other Federal agencies, State and local governments, and nonprofit and for-profit entities.

[(4) REGIONAL INNOVATION GRANT PROGRAM.—The Secretary shall incorporate data and analysis relating to any grant under subsection (b) into the program established under this subsection.

[(d) INTERAGENCY COORDINATION.—

[(1) IN GENERAL.—To the maximum extent practicable, the Secretary shall ensure that the activities carried out under this section are coordinated with, and do not duplicate the efforts of, other programs at the Department of Commerce or other Federal agencies.]

[(2) COLLABORATION.—

[(A) IN GENERAL.—The Secretary shall explore and pursue collaboration with other Federal agencies, including through multiagency funding opportunities, on regional innovation strategies.]

[(B) SMALL BUSINESSES.—The Secretary shall ensure that such collaboration with Federal agencies prioritizes the needs and challenges of small businesses.]

[(e) EVALUATION.—

[(1) IN GENERAL.—Not later than 3 years after the date of enactment of the Revitalize American Manufacturing and Innovation Act of 2014, the Secretary shall enter into a contract with an independent entity, such as the National Academy of Sciences, to conduct an evaluation of the program established under subsection (a).]

[(2) REQUIREMENTS.—The evaluation shall include—

[(A) whether the program is achieving its goals;

[(B) any recommendations for how the program may be improved; and

[(C) a recommendation as to whether the program should be continued or terminated.]

[(f) DEFINITIONS.—In this section:

[(1) REGIONAL INNOVATION CLUSTER.—The term “regional innovation cluster” means a geographically bounded network of similar, synergistic, or complementary entities that—

[(A) are engaged in or with a particular industry sector and its related sectors;

[(B) have active channels for business transactions and communication;

[(C) share specialized infrastructure, labor markets, and services; and

[(D) leverage the region’s unique competitive strengths to stimulate innovation and create jobs.]

[(2) STATE.—The term “State” means one of the several States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, or any other territory or possession of the United States.]

[(g) FUNDING.—

[(1) GENERAL RULE.—Except as provided in paragraph (2), no funds are authorized to be appropriated by the Revitalize American Manufacturing and Innovation Act of 2014 for carrying out this section.]

[(2) AUTHORITY.—To the extent provided for in advance by appropriations Acts, the Secretary may use not to exceed \$10,000,000 for each of the fiscal years 2015 through 2019 to carry out this section from amounts appropriated for economic development assistance programs.]

SEC. 27. REGIONAL INNOVATION PROGRAM.

(a) *DEFINITIONS.—In this section:*

(1) *ELIGIBLE RECIPIENT DEFINED.*—The term “eligible recipient” means—

(A) a State;

(B) an Indian tribe;

(C) a city or other political subdivision of a State;

(D) an entity that is a nonprofit organization, an institution of higher education, a public-private partnership, a science or research park, a Federal laboratory, a venture development organization, or an economic development organization or similar entity that is focused primarily on improving science, technology, innovation, or entrepreneurship; or

(E) a consortium of any of the entities described in subparagraphs (A) through (D).

(2) *REGIONAL INNOVATION INITIATIVE.*—The term “regional innovation initiative” means a geographically-bounded public or nonprofit activity or program to address issues in the local innovation systems in order to—

(A) increase the success of innovation-driven industry;

(B) strengthen the competitiveness of industry through new product innovation and new technology adoption;

(C) improve the pace of market readiness and overall commercialization of innovative research;

(D) enhance the overall innovation capacity and long-term resilience of the region; and

(E) leverage the region’s unique competitive strengths to stimulate innovation and to create jobs.

(3) *STATE.*—The term “State” means one of the several States of the United States, the District of Columbia, the Commonwealth of Puerto Rico, the United States Virgin Islands, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, or any other territory or possession of the United States.

(4) *VENTURE DEVELOPMENT ORGANIZATION.*—The term “venture development organization” means a State or nonprofit organization that contributes to regional or sector-based economic prosperity by providing services for the purposes of—

(A) accelerating the commercialization of research;

(B) strengthening the competitive position of industry through the development, commercial adoption, or deployment of technology; and

(C) providing financial grants, loans, or direct financial investment to commercialize technology.

(b) *ESTABLISHMENT.*—The Secretary shall establish a regional innovation program to encourage and support the development of regional innovation strategies designed to increase innovation-driven economic opportunity within their respective regions.

(c) *REGIONAL INNOVATION GRANTS.*—

(1) *AUTHORIZATION OF GRANTS.*—As part of the program established pursuant to subsection (b), the Secretary may award grants, on a competitive basis, to eligible recipients for activities designed to develop and support a regional innovation initiative.

(2) *PERMISSIBLE ACTIVITIES.*—A grant awarded under this subsection shall be used for multiple activities determined appropriate by the Secretary, including—

(A) *improving the connectedness and strategic orientation of the region through planning, technical assistance, and communication among participants of a regional innovation initiative;*

(B) *attracting additional participants to a regional innovation initiative;*

(C) *increasing the availability and investment of private and philanthropic financing that supports innovation-based business ventures;*

(D) *completing the research, development and introduction of new products, processes, and services into the commercial market;*

(E) *increasing the number of full-time equivalent employment opportunities within innovation-based business ventures in the geographic region; and*

(F) *achieving quantifiable, positive benefits to, or measurable enhancements for, the economic performance of the geographic region.*

(3) *RESTRICTED ACTIVITIES.*—Grants awarded under this subsection may not be used to pay for—

(A) *costs related to the recruitment, inducement, or associated financial or tangible incentives that might be offered to relocate an existing business from a geographic area to another geographic area; or*

(B) *costs associated with offsetting revenues forgone by one or more taxing authorities through tax incentives, tax increment financing, special improvement districts, tax abatements for private development within designated zones or geographic areas, or other reduction in revenues resulting from tax credits affecting the geographic region of the eligible recipients.*

(4) *APPLICATIONS.*—

(A) *IN GENERAL.*—An eligible recipient shall submit an application to the Secretary at such time, in such manner, and containing such information and assurances as the Secretary may require.

(B) *COMPONENTS.*—Each application submitted under subparagraph (A) shall—

(i) *describe the regional innovation initiative;*

(ii) *indicate whether the regional innovation initiative is supported by the private sector, State and local governments, and other relevant stakeholders;*

(iii) *identify what activities the regional innovation initiative will undertake;*

(iv) *describe the expected outcomes of the regional innovation initiative and how the eligible recipient will measure progress toward those outcomes;*

(v) *indicate whether the participants in the regional innovation initiative have access to, or contribute to, a well-trained workforce and other innovation assets that are critical to the successful outcomes specified in the application;*

(vi) indicate whether the participants in the regional innovation initiative are capable of attracting additional funds from non-Federal sources; and

(vii) if appropriate for the activities proposed in the application, analyze the likelihood that the participants in the regional innovation initiative will be able to sustain activities after grant funds received under this subsection have been expended.

(C) **FEEDBACK.**—The Secretary shall provide feedback to program applicants that are not awarded grants to help them improve future applications.

(D) **SPECIAL CONSIDERATIONS.**—The Secretary shall give special consideration to—

(i) applications proposing to include workforce or training related activities in their regional innovation initiative from eligible recipients who agree to collaborate with local workforce investment area boards; and

(ii) applications from regions that contain communities negatively impacted by trade.

(5) **COST SHARE.**—The Secretary may not provide more than 50 percent of the total cost of any activity funded under this subsection.

(6) **OUTREACH TO RURAL COMMUNITIES.**—

(A) **IN GENERAL.**—The Secretary shall conduct outreach to public and private sector entities in rural communities to encourage those entities to participate in regional innovation initiatives under this subsection.

(B) **JUSTIFICATION.**—As part of the program established pursuant to subsection (b), not less frequently than once each year for the duration of the program as authorized, the Secretary, acting through the Assistant Secretary of Commerce for Economic Development, shall submit to Congress an annual report that explains the balance in the allocation of grants to eligible recipients under this subsection between rural and urban areas.

(7) **FUNDING.**—The Secretary may accept funds from other Federal agencies to support grants and activities under this subsection.

(d) **REGIONAL INNOVATION RESEARCH AND INFORMATION PROGRAM.**—

(1) **IN GENERAL.**—As part of the program established pursuant to subsection (b), the Secretary shall establish a regional innovation research and information program—

(A) to gather, analyze, and disseminate information on best practices for regional innovation initiatives, including information relating to how innovation, productivity, and economic development can be maximized through such strategies;

(B) to provide technical assistance, including through the development of technical assistance guides, for the development and implementation of regional innovation initiatives;

(C) to support the development of relevant metrics and measurement standards to evaluate regional innovation initiatives, including the extent to which such strategies

stimulate innovation, productivity, and economic development; and

(D) to collect and make available data on regional innovation initiatives in the United States, including data on—

(i) the size, specialization, and competitiveness of regional innovation initiatives;

(ii) the regional domestic product contribution, total jobs and earnings by key occupations, establishment size, nature of specialization, patents, Federal research and development spending, and other relevant information for regional innovation initiatives; and

(iii) supply chain product and service flows within and between regional innovation initiatives.

(2) RESEARCH GRANTS.—The Secretary may award research grants on a competitive basis to support and further the goals of the program established under this section.

(3) DISSEMINATION OF INFORMATION.—Data and analysis compiled by the Secretary under the program established in this subsection shall be made available to other Federal agencies, State and local governments, and nonprofit and for-profit entities.

(4) REGIONAL INNOVATION GRANT PROGRAM.—The Secretary shall incorporate data and analysis relating to any grant awarded under subsection (c) into the program established under this subsection.

(e) INTERAGENCY COORDINATION.—

(1) IN GENERAL.—To the maximum extent practicable, the Secretary shall ensure that the activities carried out under this section are coordinated with, and do not duplicate the efforts of, other programs at the Department of Commerce or at other Federal agencies.

(2) COLLABORATION.—

(A) IN GENERAL.—The Secretary shall explore and pursue collaboration with other Federal agencies, including through multi-agency funding opportunities, on regional innovation strategies.

(B) SMALL BUSINESSES.—The Secretary shall ensure that such collaboration with Federal agencies prioritizes the needs and challenges of small businesses.

(f) EVALUATION.—

(1) IN GENERAL.—Not later than 5 years after Congress first appropriates funds to carry out this section, the Secretary shall competitively award a contract with an independent entity to conduct an evaluation of programs established under this section.

(2) REQUIREMENTS.—The evaluation conducted under paragraph (1) shall include—

(A) an assessment of whether the program is achieving its goals;

(B) the program's efficacy in providing awards to geographically diverse entities;

(C) any recommendations for how the program may be improved; and

(D) a recommendation as to whether the program should be continued or terminated.

(g) *REPORTING REQUIREMENT.*—Not later than 5 years after the first grant is awarded under subsection (c), and every 5 years thereafter until 5 years after the last grant recipient completes the regional innovation initiative for which such grant was awarded, the Secretary shall submit a report to Congress that describes the outcome of each regional innovation initiative that was completed during the previous 5 years.

(h) *FUNDING.*—From amounts appropriated by Congress for economic development assistance authorized under section 27 of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3722), the Secretary may use up to \$50,000,000 in each of the fiscal years 2020 through 2024 to carry out this section.

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