

Calendar No. 547

113TH CONGRESS }
2d Session }

SENATE

{ REPORT
113-247 }

REVITALIZE AMERICAN MANUFACTURING
AND INNOVATION ACT OF 2013

R E P O R T

OF THE

COMMITTEE ON COMMERCE, SCIENCE, AND
TRANSPORTATION

ON

S. 1468

together with

ADDITIONAL VIEWS



AUGUST 26, 2014.—Ordered to be printed
Filed, under authority of the order of the Senate of August 5 (legislative
day, August 1), 2014

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SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

ONE HUNDRED THIRTEENTH CONGRESS

SECOND SESSION

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REVITALIZE AMERICAN MANUFACTURING AND INNOVATION ACT OF 2013

AUGUST 26, 2014.—Ordered to be printed

Filed, under authority of the order of the Senate of August 5 (legislative day,
August 1), 2014

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

R E P O R T

together with

ADDITIONAL VIEWS

[To accompany S. 1468]

The Committee on Commerce, Science, and Transportation, to which was referred the bill (S. 1468) to require the Secretary of Commerce to establish the Network for Manufacturing Innovation 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

The purpose of S. 1468, the Revitalize American Manufacturing and Innovation Act of 2014, is to require the Secretary of Commerce to establish the Network for Manufacturing Innovation, a national program of public-private centers to accelerate innovation and investment in industrially relevant manufacturing technologies with broad commercial applications.

BACKGROUND AND NEEDS

Manufacturing had long been a cornerstone of the U.S. economy until the country's shift toward a services-reliant economy in the postwar era. Between 1947 and 2009, manufacturing shrank from

more than a quarter of the gross domestic product (GDP) to just a ninth of it.¹ In the same time, white-collar work grew from accounting for less than a fifth of GDP to nearly half of it.² In the first decade of the 21st century, the manufacturing sector saw even more drastic losses, with nearly one-third of the manufacturing workforce and 57,000 factories disappearing.³ Broadly speaking, industries of all shapes and sizes have moved much of their production overseas for cheaper labor, emerging market access, and favorable tax regimes.

The U.S. manufacturing sector has shown some signs of improvement in the aftermath of the Great Recession, growing about twice as fast as the overall U.S. economy since 2010. Yet these gains have not made up the losses of the preceding two decades, and questions remain whether these positive trends are durable and lasting. Experts mainly point to global circumstances—such as the growing cost of overseas labor, freight, and supply chain disruptions—for the recent improvement in U.S. manufacturing. Others cite declining domestic energy costs—as a result of falling prices and/or increased energy efficiency—as a key component to a resurgence in American manufacturing. However, some analysts believe prospects for significant job growth may be limited because of what they term a “hollowing out,” in which companies move more of their high-value work abroad.⁴ For instance, since June 2009, the U.S. manufacturing sector has seen a 20 percent increase in output but just a 2 percent increase in employment.⁵

The consequences of a diminished manufacturing sector, scholars say, are significant and many.⁶ First, because manufacturing jobs tend to require higher-level skills, they are relatively well-paying and difficult to replace once they are gone. A recent report found that the pay and benefits in manufacturing were 20 percent higher than in non-manufacturing sectors.⁷ And with global manufacturing increasingly becoming more advanced and productive—requiring proficiency in mathematics and science—the United States stands to lose out on the relatively high-paying jobs and middle-class opportunities that go with them.

Second, the loss of manufacturing jobs has caused disparate impacts on the Nation, with towns and cities long dependent on manufacturing facing high unemployment and high obstacles in attracting new businesses. The ripple effects of a factory closure extend beyond the immediate community, affecting not only the factory’s supply chain but the numerous businesses that once provided—for instance—software, telecommunications services, utilities, mar-

¹Brian McGill, “This Is What America’s Manufacturing Story Looks Like,” *The Atlantic*, December 9, 2010, at www.theatlantic.com/business/archive/2010/12/this-is-what-americas-manufacturing-story-looks-like/67765.

²*Id.*

³Testimony of AFL-CIO Executive Director Robert Baugh, in U.S. Congress, House Committee on Oversight and Government Reform, *Made in the USA: Manufacturing Policy, the Defense Industrial Base and U.S. National Security*, hearings, 111th Cong., 2nd sess., September 22, 2010, H. Rept. 111-153 (Washington, DC: GPO, 2010).

⁴Marc Levinson, *Job Creation in the Manufacturing Revival*, Congressional Research Service, June 19, 2013.

⁵Marc Levinson, “Hollowing Out” in *U.S. Manufacturing: Analysis and Issues for Congress*, Congressional Research Service, April 15, 2013.

⁶Gary Pisano and Willy Shih, “Restoring American Competitiveness,” *Harvard Business Review* (2009), at <http://dailyreporter.com/files/2012/11/restoring-american-competitiveness1.pdf>.

⁷Bruce Stokes, “Act II for American Manufacturing?,” *National Journal*, December 9, 2010, at http://www.nationaljournal.com/njonline/no_20100508_1960.php/american-manufacturing-s-new-future-is-emerging-but-it-may-need-help-20101209.

keting and sales support, building and equipment maintenance, and janitorial services.⁸

Third, the erosion of the U.S. manufacturing sector has arguably hurt national security.⁹ The United States has become more dependent on foreign nations to produce technology that is critical for its infrastructure and defense. For example, the production of semiconductors, printed circuit boards, machine tools, propellant chemicals, and space qualified electronics—all of which are critical to U.S. defense capabilities—have seen a shift overseas.¹⁰ Additionally, national security depends on highly trained workers to operate highly complex machinery, but the offshoring of production and the migration of industrial talent away from the United States may leave the country without the manufacturing capacity needed in times of national emergency.¹¹

Fourth, the offshoring of production can weaken the country's innovative capacity. While the United States remains the global leader in research and development (R&D), a diminished manufacturing sector at home may prevent the development and commercialization of the fruits of the country's R&D capabilities. As a result, innovative companies and skilled workers may see increasing incentive to move overseas to be closer to cutting-edge work. The offshoring of R&D is already starting to take root: R&D expenditures from U.S.-based multinational companies in Asian markets increased from 5 percent to 14 percent between 1955 and 2006.¹² And, over the last decade, the share of U.S. corporate R&D sites located in the United States has fallen from 59 percent to 52 percent.¹³

In light of the detrimental effects of a weak U.S. manufacturing sector, policymakers, commentators, and industry stakeholders have pointed to the need for addressing the obstacles between R&D and commercialization, often referred to as the “valley of death.” Many U.S.-based discoveries never make it out of the laboratory or, alternatively, make it out of the laboratory only to be produced overseas. As such, proponents for action have called for helping domestic companies commercialize U.S. innovations by aligning public policies with the investment decisions of the manufacturing community, maximizing the country's ability to retain production and manufacturing jobs here at home.

Other countries have reached the same conclusion. At Chairman Rockefeller's request, the Government Accountability Office (GAO) examined innovative manufacturing initiatives in foreign countries.

⁸ Richard McCormack, “The Plight of American Manufacturing,” *American Prospect*, December 21, 2009, at <http://prospect.org/article/plight-american-manufacturing>.

⁹ See generally Testimony of Economic Policy Institute Distinguished Fellow Jeff Faux, in U.S. Congress, House Committee on Oversight and Government Reform, *Made in the USA: Manufacturing Policy, the Defense Industrial Base and U.S. National Security*, hearings, 111th Cong., 2nd sess., September 22, 2010, H. Rept. 111-153 (Washington, DC: GPO, 2010).

¹⁰ Testimony of AFL-CIO Executive Director Robert Baugh, in U.S. Congress, House Committee on Oversight and Government Reform, *Made in the USA: Manufacturing Policy, the Defense Industrial Base and U.S. National Security*, hearings, 111th Cong., 2nd sess., September 22, 2010, H. Rept. 111-153 (Washington, DC: GPO, 2010).

¹¹ Testimony of Michael R. Wessel, in U.S. Congress, House Committee on Oversight and Government Reform, *Made in the USA: Manufacturing Policy, the Defense Industrial Base and U.S. National Security*, hearings, 111th Cong., 2nd sess., September 22, 2010, H. Rept. 111-153 (Washington, DC: GPO, 2010).

¹² Testimony of Dr. Robert D. Atkinson, President of the Information Technology and Innovation Foundation, in U.S. Congress, Senate Committee on Commerce, Science and Transportation, *Innovation in America: Opportunities and Obstacles*, hearings, 111th Cong., 2nd sess., June 22, 2010, S. Rept. 111-1018 (Washington, DC: GPO, 2010).

¹³ *Id.*

In July 2013, GAO issued a report finding that, relative to the United States, four countries with advanced economies with robust manufacturing sectors—Canada, Germany, Japan, and South Korea—place greater emphasis on commercialization programs to help their manufacturers bridge the gap between innovative ideas and sales.¹⁴ These include programs that support infrastructure as well as provide hands-on technical and product development services to businesses, in addition to programs that foster collaboration between manufacturers and researchers.¹⁵ In contrast, the United States relies heavily on competitive funding for R&D projects.¹⁶

To address the aforementioned “valley of death,” President Obama formally unveiled the National Network for Manufacturing Innovation (NNMI) in his fiscal year 2013 budget, calling for the establishment of 15 institutes with \$1 billion in mandatory funding over 9 years.¹⁷ NNMI, according to the Administration, would help accelerate innovation by investing in manufacturing technologies that have broad applications for industry and would further support their commercialization by creating a space for the public and private sectors, including university researchers and industry, to collaborate, advancing innovations at a much faster rate than any one company could on its own.¹⁸ While Congress has yet to pass legislation on the proposal, the Administration has used existing authorities and funds to establish a pilot institute focused on additive, or 3-D, manufacturing in 2012—known as America Makes (or the National Additive Manufacturing Innovation Institute) in Youngstown, Ohio—and to begin the establishment of three more institutes. In January 2014, the Administration announced the first of these three institutes: a Department of Energy-funded hub in Raleigh, North Carolina, that will focus on advanced semiconductors to reduce energy use. In February 2014, the Administration announced the formation of the two other institutes to be funded by the Department of Defense and non-Federal matching funds: one in Detroit, Michigan, focused on lightweight, high-performing alloys, and one in Chicago, Illinois, focused on digital manufacturing.

SUMMARY OF PROVISIONS

S. 1468 would establish public-private institutes that would leverage promising R&D for commercial manufacturing purposes. By forming manufacturing “hubs” involving universities, community colleges, industry, and relevant government stakeholders, the purpose of these institutes would be to bridge the innovation gap, colloquially known as the “valley of death,” whereby R&D with potentially broad commercial applications fails to materialize into

¹⁴ U.S. Government Accountability Office, *Global Manufacturing: Foreign Government Programs Differ in Some Key Respects from Those in the United States*, GAO-13-365, July 2013, at <http://www.gao.gov/assets/660/656239.pdf>.

¹⁵ *Id.*

¹⁶ *Id.*

¹⁷ White House, Office of the Press Secretary, “President Obama to Announce New Efforts to Support Manufacturing Innovation, Encourage Insourcing,” press release, March 9, 2012, at www.whitehouse.gov/the-press-office/2012/03/09/president-obama-announce-new-efforts-support-manufacturing-innovation-en.

¹⁸ Testimony of Patrick D. Gallagher, in U.S. Congress, House Committee on Science, Space, and Technology, *Assembling the Facts: Examining the Proposed National Network for Manufacturing Innovation*, hearings, 112th Cong., 2nd sess., May 31, 2012, H. Rept. 112-86 (Washington, DC: GPO, 2012).

tangible product development. The institutes would be assessed, among other things, on their outreach and engagement with small- and medium-sized enterprises (SMEs) to improve the capacity of such enterprises to commercialize new processes and technologies. The bill would also provide students and workers with the education and skills necessary to participate in the advanced manufacturing workforce through the institutes.

LEGISLATIVE HISTORY

Senators Brown and Blunt introduced S. 1468 on August 1, 2013. The bill is also cosponsored by Senators Graham, Schumer, Stabenow, Kirk, Coons, Collins, King, Levin, Reed, Wicker, Boozman, Ayotte, Rockefeller, and Udall of New Mexico. The bill has received support from numerous companies, associations, and educational institutions.

On November 13, 2013, the Committee on Commerce, Science, and Transportation held a hearing, “The Role of Manufacturing Hubs in a 21st Century Innovation Economy,” which included discussion and consideration of S. 1468. On April 9, 2014, in an open Executive Session, the Committee considered the bill and ordered reported S. 1468, as amended, favorably by voice vote. At the Executive Session, the Chairman and Ranking Member expressed their shared understanding that identification of an appropriate offset for the cost of the proposed new program would be necessary to garner support for Senate passage of the legislation. The Committee adopted a substitute amendment from Senator Blunt, a first-degree amendment from Senator Klobuchar, and a first-degree amendment from Senator Pryor.

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:

U.S. CONGRESS,
CONGRESSIONAL BUDGET OFFICE,
Washington, DC, June 6, 2014.

Hon. JOHN D. ROCKEFELLER IV,
Chairman, Committee on Commerce, Science, and Transportation,
U.S. Senate, Washington, DC.

DEAR MR. CHAIRMAN: The Congressional Budget Office has prepared the enclosed cost estimate for S. 1468, the Revitalize American Manufacturing and Innovation Act of 2014.

If you wish further details on this estimate, we will be pleased to provide them. The CBO staff contact is Susan Willie.

Sincerely,

DOUGLAS W. ELMENDORF.

Enclosure.

S. 1468—Revitalize American Manufacturing and Innovation Act of 2014

Summary: S. 1468 would establish the Network for Manufacturing Innovation Program (NMIP) within the National Institute of

Standards and Technology (NIST). Under the program, NIST would award grants to establish a network of centers of innovation to improve the competitiveness of domestic manufacturers. The bill also would require several studies by the Government Accountability Office (GAO) and other agencies as well as the development of a strategic plan for advanced manufacturing.

CBO estimates that implementing S. 1468 would cost \$265 million over the 2015–2019 period, assuming appropriation of the necessary amounts. Enacting S. 1468 could affect direct spending; therefore, pay-as-you-go procedures apply. CBO estimates, however, that such effects would be insignificant. Enacting S. 1468 would not affect revenues.

S. 1468 contains no intergovernmental or private-sector mandates as defined in the Unfunded Mandates Reform Act (UMRA).

Estimated cost to the Federal Government: The estimated budgetary effect of S. 1468 is shown in the following table. The costs of this legislation fall within budget function 370 (commerce and housing credit).

		By fiscal year, in millions of dollars—					
		2015	2016	2017	2018	2019	2012-2019
CHANGES IN SPENDING SUBJECT TO APPROPRIATION ^a							
Network for Manufacturing Innovation:							
Authorization Level		300	0	0	0	0	300
Estimated Outlays		30	60	75	60	30	255
Reports:							
Estimated Authorization Level		8	0	1	2	*	11
Estimated Outlays		5	3	0	1	1	10
Total Changes:							
Estimated Authorization Level		308	0	1	2	*	311
Estimated Outlays		35	63	75	61	31	265

Note: * = less than \$500,000.

^a CBO estimates that enacting S. 1468 also would have an insignificant effect on direct spending.

Basis of estimate: For this estimate, CBO assumes that S. 1468 will be enacted near the end of 2014, that the necessary amounts will be appropriated near the beginning of each fiscal year, and that spending will follow historical patterns for similar activities.

Spending subject to appropriation

Network for Manufacturing Innovation. S. 1468 would authorize the appropriation of \$300 million to establish a network of centers to support research and development, education, training, and other efforts to improve the capacity of domestic manufacturers to use advanced technology. Under the bill, NIST would be required to develop a strategic plan for the program and a system to award and oversee grants to eligible applicants, and to report to the Congress annually on program performance.

Based on information from NIST, CBO expects that the agency would create four institutes with the funds made available under the bill. Those new institutes would join four existing institutes that were created with funds from the Departments of Defense and Energy and four other institutes currently under development. CBO estimates that implementing the NMIP would cost \$255 million over the 2015–2019 period, assuming appropriation of the specified amount.

Reports. The bill also would require NIST to develop a national strategic plan for advanced manufacturing that would be updated every four years. Further, S. 1468 would require several reports to the Congress by GAO and other agencies including an assessment of NMIP operations every two years, an evaluation of the competitiveness of the United States in international trade, and a survey measuring the economic effect of Chinese holdings of rare earth elements (metals that tend to be found together in geologic deposits but often not in concentrations high enough to be extracted economically).

Based on information from NIST and the International Trade Administration (ITA), CBO estimates that preparing the strategic plan and the additional reports would cost about \$10 million over the 2015–2019 period, assuming appropriation of the necessary amounts. Of that amount, CBO estimates that NIST would spend about \$4 million to develop and update the strategic plan for advanced manufacturing, and the ITA would spend \$5 million to complete the survey and the report on China’s holdings of rare earth elements.

Direct spending

S. 1468 would authorize NIST to accept funds from private entities to carry out the NMIP and would make those amounts available to the agency without further appropriation. Based on information from NIST, CBO estimates that this provision would have an insignificant effect on net direct spending because amounts collected would be small, less than \$500,000 per year. Any additional collections subsequently would be spent by the agency.

Pay-As-You-Go considerations: The Statutory Pay-As-You-Go Act of 2010 establishes budget-reporting and enforcement procedures for legislation affecting direct spending or revenues. CBO estimates that enacting S. 1468 would affect direct spending because the bill would authorize NIST to accept and spend funds from private entities without further appropriation action, but those effects would be insignificant. Enacting S. 1468 would not affect revenues.

Intergovernmental and private-sector impact: S. 1468 contains no intergovernmental or private-sector mandates as defined in UMRA.

Estimate prepared by: Federal Costs: Susan Willie; Impact on State, Local, and Tribal Governments: Melissa Merrell; Impact on the Private Sector: Marin Burnett.

Estimate approved by: Theresa Gullo, Deputy Assistant Director for Budget Analysis.

REGULATORY IMPACT

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

S. 1468 would establish public-private institutes that would leverage promising R&D for commercial manufacturing purposes. The bill would direct the Department of Commerce to competitively award funding to applicants that meet key criteria. While there are no new regulatory requirements in the bill, any institute awarded

funding under the bill would be subject to any rules and reporting requirements established by the bill or by the Department of Commerce.

ECONOMIC IMPACT

This legislation is not expected to have an adverse economic impact on the Nation. The bill would establish public-private partnerships aimed at strengthening innovation and the U.S. manufacturing sector.

PRIVACY

S. 1468 would not have a negative impact on the personal privacy of individuals.

PAPERWORK

S. 1468 would create new reporting requirements for the Department of Commerce, the recipients of financial assistance under the Program, and GAO. The Secretary of Commerce would be required to submit at least every two years to the Senate Committee on Commerce, Science, and Transportation and the House Committee on Science, Space, and Technology a strategic plan to guide the Program, and the Secretary of Commerce would also be required to submit each year to Congress a report describing the performance of the Program. Each recipient of financial assistance would be required to submit annually to the Secretary of Commerce a report describing the finances and performance of the Centers for Manufacturing Innovation. GAO would be required to submit at least every two years to Congress a report assessing the operations of the Program.

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.

Section 1 would establish the title of the bill as the “Revitalize American Manufacturing and Innovation Act of 2014.”

Section 2. Findings.

Section 2 would establish the findings of the bill, including the benefits of advanced manufacturing and comparative global statistics.

Section 3. Establishment of Network for Manufacturing Innovation.

Section 3 would create a Network for Manufacturing Innovation (NMI) Program within the National Institute of Standards and Technology (NIST) in the Department of Commerce. The section further would establish the purposes of the NMI Program: to measurably improve competitiveness in U.S. manufacturing; to stimulate innovation; to facilitate the transition of innovative and trans-

formative technologies into viable commercial applications; to provide manufacturing enterprises with access to capital-intensive infrastructure and technologies; to measurably accelerate skilled workforce development; to facilitate the exchange of best practices; and to leverage non-Federal capital to develop a self-sustaining business model. The NMI Program would be administered by the National Office of the Network for Manufacturing Innovation Program (National Program Office) and by a Director, as designated by the Secretary of Commerce.

Section 3 also would define and structure the Centers for Manufacturing Innovation (CMIs), which would make up the NMI Program. Specifically, CMIs would address challenges in advanced manufacturing and focus on a manufacturing process, new material or technology, supply-chain integration methodology, or another aspect of advanced manufacturing; focus on improving U.S. manufacturing competitiveness, accelerate investment in advanced manufacturing capacity, and enable commercial application of new technologies; foster active participation among industry, research universities, community colleges, and other relevant entities; engage in research, development, and demonstration projects, including proof-of-concept prototyping, to reduce the cost, time, and risk of commercializing new industry-driven technologies and processes with economic or national security implications; develop education and training programs and conduct outreach and engagement with small- and medium-size businesses; and include existing centers, such as the National Additive Manufacturing Innovation Institute (recently renamed America Makes).

The National Program Office would provide financial support for CMIs by conducting a competitive, merit-based selection process upon receiving applications, which would be required to specify the sources and amounts of non-Federal financial support. Furthermore, the National Program Office would consult with agencies whose missions overlap with advanced manufacturing. In considering applications, the National Program Office would award bids based on the potential economic impact of an applicant's innovative focus, the level of non-Federal financial support, degree of engagement with SMEs, plans for workforce development, and regional assets, among other factors. Furthermore, the Secretary must consider ability of potential CMIs to leverage continuing non-Federal support and eventually become self-sustaining. An explanation of the merits of a winning application and the bases for the award would be made publicly available at the time of the award. The Secretary of Commerce would also be required to develop and implement performance metrics to assess the effectiveness of the activities funded.

Federal financial support for a CMI would be limited to seven years in duration and up to 50 percent of the CMI's total funding. The amount of Federal financial support would decrease after the second year of funding and each year thereafter, unless the CMI has met its goals and metrics, encountered unforeseen circumstances, and can identify future non-Federal funding sources. The National Program Office would be limited to providing financial support for no more than 15 CMIs in a single year.

Under section 3, the National Program Office would also be responsible for, among other things, reporting to Congress on the

NMI plan, disseminating best practices, and establishing a clearinghouse of public information about the NMI Program. In addition, CMIs would be required to submit annual reports to the National Program Office, and GAO would be directed to conduct an assessment of the NMI Program every two years.

Section 3 would authorize a one-time sum of \$300,000,000 for the NMI Program, and rescind an equal amount of unobligated discretionary appropriations. The Secretary of Commerce would also be permitted to use no more than 10 percent of the funds of any economic development, manufacturing, or small business assistance program, except for the Hollings Manufacturing Extension Program, to carry out the NMI Program. No more than 5 percent of appropriated funds would be allowed for administrative purposes.

Finally, section 3 would repeal the Technology and Innovation Program (15 U.S.C. 278n), merge the Advanced Manufacturing Technology Consortia (AMTech) Program with the NMI Program, and set a sunset date for the NMI Program for December 31, 2024.

Section 4. Report.

Section 4 of the bill would require the Secretary of Commerce to conduct a survey measuring the economic impact of China's rare-earth monopoly on the United States and other affected nations. Within a year of enactment, the Secretary would submit a report detailing the results of the study and further include recommendations on initiating direct dialogue with affected nations and promoting cooperative resolutions.

Section 5. Report on competitiveness of United States in international trade.

Section 5 would direct the Secretary of Commerce to submit a report to Congress that evaluates the competitiveness of the United States in export markets, identifies both domestic and foreign barriers to increasing exports, and makes recommendations for legislative action.

Section 6. National strategic plan for advanced manufacturing.

Section 6 would amend the existing reporting requirement in section 102 of the America COMPETES Reauthorization Act of 2010 (42 U.S.C. 6622) by directing the Committee on Technology—which is under the National Science and Technology Council in the Office of Science and Technology Policy—to develop every four years with the National Economic Council a strategic plan to improve government coordination and long-term guidance for Federal programs and activities in support of U.S. manufacturing competitiveness.

ADDITIONAL VIEWS OF SENATOR THUNE

I write separately to note my views regarding S. 1468, the “Revitalize American Manufacturing and Innovation Act of 2014,” which are shared by several of my colleagues. I appreciate the willingness of Chairman Rockefeller and the bill’s lead sponsors, Senators Brown and Blunt, to engage in meaningful negotiations regarding the legislation. The substitute amendment offered by Senator Blunt and adopted at the Committee’s Executive Session reflected bipartisan negotiations and made several important improvements to the bill. Among other things, the substitute lowered the authorization level in the bill by half as compared to the introduced bill; added a 10-year sunset to the bill’s funding authority; repealed and consolidated two potentially duplicative programs at the Department of Commerce; and included additional changes to enhance transparency, improve oversight, and ensure the contemplated manufacturing centers can stand on their own in a reasonable time period, without ongoing federal financial assistance.

This kind of bipartisan give-and-take on legislation has been characteristic of the Committee’s work, and permitted the bill to be adopted by voice vote during the Executive Session. Nevertheless, while I believe the bill has been significantly improved, I continue to have reservations about the legislation, and I am withholding my final support at this writing. That being said, I remain committed to working with the Chairman and other colleagues in an effort to improve it further before the full Senate votes on the bill as reported from this Committee.

While I strongly support the goal of increasing advanced manufacturing in the United States, it is not clear that additional federal involvement—and taxpayer funding—is really the missing ingredient needed to spur innovation. Among other things, it seems probable that the most promising manufacturing technologies and processes—the ones most likely to compete effectively for financial assistance under the program envisioned by the bill—are the same ones that are most likely to attract private sector or more localized public sector investments without federal intervention.

I believe as Congress seeks to spur economic growth—including advanced manufacturing—that meaningful regulatory reform, tax reform, and enactment of trade promotion authority could benefit an even greater number of manufacturers than might benefit under the current bill. As Christina Romer, former chairwoman of President Obama’s Council of Economic Advisers, has written: “Without compelling evidence of special market failures in manufacturing, it

might be better to enact policies that will make *all* American businesses and workers more productive and successful.”¹⁹

Additionally, an open amendment process on the Senate floor may allow some of these policies that enjoy bipartisan support to be considered as part of a final legislative package. Along with an appropriate, mutually agreed upon offset for the new funding in the bill, such additions would likely increase support for Senate passage of the measure.

¹⁹See Christina D. Romer, “Do Manufacturers Need Special Treatment?” The New York Times, February 4, 2012 (emphasis added), available at: <http://www.nytimes.com/2012/02/05/business/do-manufacturers-need-special-treatment-economic-view.html>. As Ms. Romer noted, the President raised some of these policies in his 2012 State of the Union Address, including: “expansion and enforcement of free trade agreements; public investment in basic science, infrastructure and education; and corporate tax reform.”

CHANGES IN EXISTING LAW

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

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY ACT

SEC. 2. ESTABLISHMENT, FUNCTIONS, AND ACTIVITIES.

[15 U.S.C. 272]

* * * * *

(d) MANAGEMENT COSTS.—In carrying out the extramural funding programs of the Institute, including the programs established under [sections 25, 26, and 28] *sections 25 and 26* of this Act, the Secretary may retain reasonable amounts of any funds appropriated pursuant to authorizations for these programs in order to pay for the Institute's management of these programs.

* * * * *

SEC. 10. VISITING COMMITTEE ON ADVANCED TECHNOLOGY.

[15 U.S.C. 278]

* * * * *

(h) ANNUAL AND OTHER REPORTS TO SECRETARY AND CONGRESS.—

(1) The Committee shall render an annual report to the Secretary for submission to the Congress not later than 30 days after the submittal to Congress of the President's annual budget request in each year. Such report shall deal essentially, though not necessarily exclusively, with policy issues or matters which affect the Institute[, including the Program established under section 28,] or with which the Committee in its official role as the private sector policy advisor of the Institute is concerned. Each such report shall identify areas of research and research techniques of the Institute of potential importance to the long-term competitiveness of United States industry, in which the Institute possesses special competence, which could be used to assist United States enterprises and United States industrial joint research and development ventures. Such report also shall comment on the programmatic planning document and updates thereto submitted to Congress by the Director under subsections (c) and (d) of section 23.

(2) The Committee shall render to the Secretary and the Congress such additional reports on specific policy matters as it deems appropriate.

* * * * *

[SEC. 28. TECHNOLOGY INNOVATION PROGRAM.

[15 U.S.C. 278n]

[(a) ESTABLISHMENT.—There is established within the Institute a program linked to the purpose and functions of the Institute, to be known as the “Technology Innovation Program” for the purpose of assisting United States businesses and institutions of higher education or other organizations, such as national laboratories and nonprofit research institutions, to support, promote, and accelerate innovation in the United States through high-risk, high-reward research in areas of critical national need.

[(b) EXTERNAL FUNDING.—

[(1) IN GENERAL.—The Director shall award competitive, merit-reviewed grants, cooperative agreements, or contracts to—

[(A)] eligible companies that are small-sized businesses or medium-sized businesses; or

[(B)] joint ventures.

[(2) SINGLE COMPANY AWARDS.—No award given to a single company shall exceed \$3,000,000 over 3 years.

[(3) JOINT VENTURE AWARDS.—No award given to a joint venture shall exceed \$9,000,000 over 5 years.

[(4) FEDERAL COST SHARE.—The Federal share of a project funded by an award under the program shall not be more than 50 percent of total project costs.

[(5) PROHIBITIONS.—Federal funds awarded under this program may be used only for direct costs and not for indirect costs, profits, or management fees of a contractor. Any business that is not a small-sized or medium-sized business may not receive any funding under this program.

[(c) AWARD CRITERIA.—The Director shall only provide assistance under this section to an entity—

[(1)] whose proposal has scientific and technical merit and may result in intellectual property vesting in a United States entity that can commercialize the technology in a timely manner;

[(2)] whose application establishes that the proposed technology has strong potential to address critical national needs through transforming the Nation’s capacity to deal with major societal challenges that are not currently being addressed, and generate substantial benefits to the Nation that extend significantly beyond the direct return to the applicant;

[(3)] whose application establishes that the research has strong potential for advancing the state-of-the-art and contributing significantly to the United States science and technology knowledge base;

[(4)] whose proposal explains why Technology Innovation Program support is necessary, including evidence that the research will not be conducted within a reasonable time period in the absence of financial assistance under this section;

[(5) whose application demonstrates that reasonable efforts have been made to secure funding from alternative funding sources and no other alternative funding sources are reasonably available to support the proposal; and

[(6) whose application explains the novelty of the technology and demonstrates that other entities have not already developed, commercialized, marketed, distributed, or sold similar technologies.

[(d) COMPETITIONS.—The Director shall solicit proposals at least annually to address areas of critical national need for high-risk, high-reward projects.

[(e) INTELLECTUAL PROPERTY RIGHTS OWNERSHIP.—

[(1) IN GENERAL.—Title to any intellectual property developed by a joint venture from assistance provided under this section may vest in any participant in the joint venture, as agreed by the members of the joint venture, notwithstanding section 202(a) and (b) of title 35, United States Code. The United States may reserve a nonexclusive, nontransferable, irrevocable paid-up license, to have practice for or on behalf of the United States in connection with any such intellectual property, but shall not in the exercise of such license publicly disclose proprietary information related to the license. Title to any such intellectual property shall not be transferred or passed, except to a participant in the joint venture, until the expiration of the first patent obtained in connection with such intellectual property.

[(2) LICENSING.—Nothing in this subsection shall be construed to prohibit the licensing to any company of intellectual property rights arising from assistance provided under this section.

[(3) DEFINITION.—For purposes of this subsection, the term “intellectual property” means an invention patentable under title 35, United States Code, or any patent on such an invention, or any work for which copyright protection is available under title 17, United States Code.

[(f) PROGRAM OPERATION.—Not later than 9 months after the date of the enactment of this section, the Director shall promulgate regulations—

[(1) establishing criteria for the selection of recipients of assistance under this section;

[(2) establishing procedures regarding financial reporting and auditing to ensure that awards are used for the purposes specified in this section, are in accordance with sound accounting practices, and are not funding existing or planned research programs that would be conducted within a reasonable time period in the absence of financial assistance under this section; and

[(3) providing for appropriate dissemination of Technology Innovation Program research results.

[(g) ANNUAL REPORT.—The Director shall submit annually to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science and Technology of the House of Representatives a report describing the Technology Innovation Program’s activities, including a description of the metrics upon which

award funding decisions were made in the previous fiscal year, any proposed changes to those metrics, metrics for evaluating the success of ongoing and completed awards, and an evaluation of ongoing and completed awards. The first annual report shall include best practices for management of programs to stimulate high-risk, high-reward research.

[(h) CONTINUATION OF ATP GRANTS.—The Director shall, through the Technology Innovation Program, continue to provide support originally awarded under the Advanced Technology Program, in accordance with the terms of the original award and consistent with the goals of the Technology Innovation Program.

[(i) COORDINATION WITH OTHER STATE AND FEDERAL TECHNOLOGY PROGRAMS.—In carrying out this section, the Director shall, as appropriate, coordinate with other senior State and Federal officials to ensure cooperation and coordination in State and Federal technology programs and to avoid unnecessary duplication of efforts.

[(j) ACCEPTANCE OF FUNDS FROM OTHER FEDERAL AGENCIES.—In addition to amounts appropriated to carry out this section, the Secretary and the Director may accept funds from other Federal agencies to support awards under the Technology Innovation Program. Any award under this section which is supported with funds from other Federal agencies shall be selected and carried out according to the provisions of this section. Funds accepted from other Federal agencies shall be included as part of the Federal cost share of any project funded under this section.

[(k) TIP ADVISORY BOARD.—

[(1) ESTABLISHMENT.—There is established within the Institute a TIP Advisory Board.

[(2) MEMBERSHIP.—

[(A) IN GENERAL.—The TIP Advisory Board shall consist of 10 members appointed by the Director, at least 7 of whom shall be from United States industry, chosen to reflect the wide diversity of technical disciplines and industrial sectors represented in Technology Innovation Program projects. No member shall be an employee of the Federal Government.

[(B) TERM.—Except as provided in subparagraph (C) or (D), the term of office of each member of the TIP Advisory Board shall be 3 years.

[(C) CLASSES.—The original members of the TIP Advisory Board shall be appointed to 3 classes. One class of 3 members shall have an initial term of 1 year, one class of 3 members shall have an initial term of 2 years, and one class of 4 members shall have an initial term of 3 years.

[(D) VACANCIES.—Any member appointed to fill a vacancy occurring prior to the expiration of the term for which his predecessor was appointed shall be appointed for the remainder of such term.

[(E) SERVING CONSECUTIVE TERMS.—Any person who has completed 2 consecutive full terms of service on the TIP Advisory Board shall thereafter be ineligible for appointment during the 1-year period following the expiration of the second such term.

[(3) PURPOSE.—The TIP Advisory Board shall meet not less than 2 times annually, and provide the Director—

[(A) advice on programs, plans, and policies of the Technology Innovation Program;

[(B) reviews of the Technology Innovation Program’s efforts to accelerate the research and development of challenging, high-risk, high-reward technologies in areas of critical national need;

[(C) reports on the general health of the program and its effectiveness in achieving its legislatively mandated mission; and

[(D) guidance on investment areas that are appropriate for Technology Innovation Program funding;

[(4) ADVISORY CAPACITY.—In discharging its duties under this subsection, the TIP Advisory Board shall function solely in an advisory capacity, in accordance with the Federal Advisory Committee Act.

[(5) ANNUAL REPORT.—The TIP Advisory Board shall transmit an annual report to the Secretary for transmittal to the Congress not later than 30 days after the submission to Congress of the President’s annual budget request in each year. Such report shall address the status of the Technology Innovation Program and comment on the relevant sections of the programmatic planning document and updates thereto transmitted to Congress by the Director under subsections (c) and (d) of section 23.

[(1) DEFINITIONS.—In this section—

[(1) the term “eligible company” means a small-sized or medium-sized business that is incorporated in the United States and does a majority of its business in the United States, and that either—

[(A) is majority owned by citizens of the United States;

or

[(B) is owned by a parent company incorporated in another country and the Director finds that—

[(i) the company’s participation in the Technology Innovation Program would be in the economic interest of the United States, as evidenced by—

[(I) investments in the United States in research and manufacturing;

[(II) significant contributions to employment in the United States; and

[(III) agreement with respect to any technology arising from assistance provided under this section to promote the manufacture within the United States of products resulting from that technology; and

[(ii) the company is incorporated in a country which—

[(I) affords to United States-owned companies opportunities, comparable to those afforded to any other company, to participate in any joint venture similar to those receiving funding under this section;

[(II) affords to United States-owned companies local investment opportunities comparable to those afforded any other company; and

[(III) affords adequate and effective protection for intellectual property rights of United States-owned companies;

[(2) the term “high-risk, high-reward research” means research that—

[(A) has the potential for yielding transformational results with far-ranging or wide-ranging implications;

[(B) addresses critical national needs within the National Institute of Standards and Technology’s areas of technical competence; and

[(C) is too novel or spans too diverse a range of disciplines to fare well in the traditional peer-review process;

[(3) the term “institution of higher education” has the meaning given that term in section 101 of the Higher Education Act of 1965 (20 U.S.C. 1001);

[(4) the term “joint venture” means a joint venture that—

[(A) includes either—

[(i) at least 2 separately owned for-profit companies that are both substantially involved in the project and both of which are contributing to the cost-sharing required under this section, with the lead entity of the joint venture being one of those companies that is a small-sized or medium-sized business; or

[(ii) at least 1 small-sized or medium-sized business and 1 institution of higher education or other organization, such as a national laboratory or nonprofit research institute, that are both substantially involved in the project and both of which are contributing to the cost-sharing required under this section, with the lead entity of the joint venture being either that small-sized or medium-sized business or that institution of higher education; and

[(B) may include additional for-profit companies, institutions of higher education, and other organizations, such as national laboratories and nonprofit research institutes, that may or may not contribute non-Federal funds to the project; and

[(5) the term “TIP Advisory Board” means the advisory board established under subsection (k).]¹

* * * * *

SEC. 34. NETWORK FOR MANUFACTURING INNOVATION.

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

(1) *IN GENERAL.*—*The Secretary of Commerce shall establish within the Institute a program to be known as the “Network for*

¹Notwithstanding the repeal of section 28 of the National Institute of Standards and Technology Act (15 U.S.C. 278n), the Director shall carry out that section as that section was in effect on the day before the date of enactment of the Revitalize American Manufacturing and Innovation Act of 2014, with respect to applications for grants, cooperative agreements, or contracts under that section submitted before that date.

Manufacturing Innovation Program” (referred to in this section as the “Program”).

(2) *PURPOSES OF PROGRAM.*—The purposes of the Program are—

(A) to improve measurably the competitiveness of United States manufacturing and to increase domestic production;

(B) to stimulate United States leadership in advanced manufacturing research, innovation, and technology that has a strong potential to generate substantial benefits to the Nation that extend significantly beyond the direct return to participants in the Program;

(C) to facilitate the transition of innovative and transformative technologies into scalable, cost-effective, and high-performing manufacturing capabilities;

(D) to facilitate access by manufacturing enterprises to capital-intensive infrastructure, including high-performance computing, in order to improve the speed with which such enterprises commercialize new processes and technologies;

(E) to accelerate measurably the development of an advanced manufacturing workforce;

(F) to facilitate peer exchange of and the documentation of best practices in addressing advanced manufacturing challenges; and

(G) to leverage non-Federal sources of support to promote a stable and sustainable business model without the need for long-term Federal funding.

(3) *SUPPORT.*—The Secretary, acting through the Director, shall carry out the purposes set forth in paragraph (2) by supporting—

(A) the Network for Manufacturing Innovation established under subsection (b); and

(B) the establishment of centers for manufacturing innovation.

(4) *DIRECTOR.*—The Secretary shall carry out the Program through the Director.

(b) *ESTABLISHMENT OF NETWORK FOR MANUFACTURING INNOVATION.*—

(1) *IN GENERAL.*—As part of the Program, the Secretary of Commerce shall establish a network of centers for manufacturing innovation.

(2) *DESIGNATION.*—The network established under paragraph (1) shall be known as the “Network for Manufacturing Innovation” (referred to in this section as the “Network”).

(c) *CENTERS FOR MANUFACTURING INNOVATION.*—

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

(A) has been established by a person or group of persons to address challenges in advanced manufacturing and to assist manufacturers in retaining or expanding industrial production and jobs in the United States;

(B) has a predominant focus on a manufacturing process, novel material, enabling technology, supply chain integration methodology, or another relevant aspect of advanced

manufacturing, as determined by the Secretary, with the potential—

(i) to improve the competitiveness of United States manufacturing;

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

(iii) to increase measurably the non-Federal investment in advanced manufacturing research; and

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

(C) includes active participation among representatives from multiple industrial entities, research universities, community colleges, and such other entities as the Secretary considers appropriate, which may include industry-led consortia, career and technical education schools, Federal laboratories, State, local, and tribal governments, businesses, educational institutions, and nonprofit organizations.

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

(A) Research, development, and demonstration projects, including proof-of-concept development and prototyping, to reduce the cost, time, and risk of commercializing new technologies and improvements in existing technologies, processes, products, and research and development of materials to solve pre-competitive industrial problems with economic or national security implications.

(B) Development and implementation of education and training courses, materials, and programs.

(C) Development of workforce recruitment programs and initiatives.

(D) Development of innovative methodologies and practices for supply chain integration and introduction of new technologies into supply chains.

(E) Development or updating of industry-led, shared-vision technology roadmaps for the development of technologies underpinning next-generation or transformational innovations.

(F) Outreach and engagement with small- and medium-sized manufacturing enterprises, in addition to large manufacturing enterprises.

(G) Such other activities as the Secretary, in consultation with Federal departments and agencies whose missions contribute to or are affected by advanced manufacturing, considers consistent with the purposes described in subsection (a)(2).

(3) ADDITIONAL CENTERS FOR MANUFACTURING INNOVATION.—

(A) IN GENERAL.—The National Additive Manufacturing Innovation Institute and manufacturing centers formally recognized or under pending interagency review on the date of enactment of the Revitalize American Manufacturing and Innovation Act of 2014 shall be considered centers for

manufacturing innovation, but such centers shall not receive any preference for financial assistance under subsection (d) solely on the basis of being considered centers for manufacturing innovation under this paragraph.

(B) *NETWORK PARTICIPATION.*—A manufacturing center that is substantially similar to those established under this subsection but that does not receive financial assistance under subsection (d) may, upon request of the center, be recognized as a center by the Secretary for purposes of participation in the Network.

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

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

(2) *APPLICATION.*—A person seeking financial assistance under paragraph (1) 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), 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), the Secretary shall use a competitive, merit review process that includes peer review by a diverse group of individuals with relevant expertise.

(B) *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 to assess the effectiveness of the activities funded.

(C) *COLLABORATION.*—In awarding financial assistance under paragraph (1), the Secretary shall, acting through the National Program Office established under subsection (e)(1), collaborate with Federal departments and agencies whose missions contribute to or are affected by advanced manufacturing.

(D) *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) *The potential of the center for manufacturing innovation to advance domestic manufacturing and the likelihood of economic impact in the predominant focus areas of the center for manufacturing innovation.*

(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 from non-Federal sources significantly outweighs the requested Federal financial assistance.*

(iv) *How the center for manufacturing innovation will increase the non-Federal investment in advanced manufacturing research in the United States.*

(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.*

(vi) *How the center for manufacturing innovation will carry out educational and workforce activities that meet industrial needs related to the predominant focus areas of the center for manufacturing innovation.*

(vii) *How the center for manufacturing innovation will advance economic competitiveness both globally and domestically and generate substantial benefits to the Nation that extend beyond the direct return to participants in the Program.*

(viii) *Whether the predominant focus of the center for manufacturing innovation is a manufacturing process, novel material, enabling technology, supply chain integration methodology, or other relevant aspect of advanced manufacturing that has not already been commercialized, marketed, distributed, or sold by another entity.*

(ix) *How the center for manufacturing innovation will strengthen and leverage the assets of a region.*

(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 a center under that paragraph.

(B) *MATCHING FUNDS AND WEIGHTED 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. The Secretary may give a weighted preference to applicants

seeking less than the maximum amount of funding 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 a 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 Act;*

(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.*

(D) *AWARD LIMIT.*—No more than 15 centers of manufacturing innovation may receive financial assistance under paragraph (1) in any single year.

(e) *NATIONAL PROGRAM OFFICE.*—

(1) *ESTABLISHMENT.*—The Secretary of Commerce shall establish, within the Institute, the National Office of the Network for Manufacturing Innovation Program (referred to in this section as the “National Program Office”), which shall oversee and carry out the Program.

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

(A) *to oversee the planning, management, and coordination of the Program;*

(B) *to enter into memorandums of understanding with Federal departments and agencies, whose missions contribute to or are affected by advanced manufacturing, to carry out the purposes described in subsection (a)(2);*

(C) *to develop, not later than 1 year after the date of the enactment of the Revitalize American Manufacturing and Innovation Act of 2014, and update not less frequently than once every 2 years thereafter, a strategic plan to guide the Program;*

(D) *to establish such procedures, processes, and criteria as may be necessary and appropriate to maximize cooperation and coordinate the activities of the Program with programs and activities of other Federal departments and agencies whose missions contribute to or are affected by advanced manufacturing;*

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

(F) *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, and other relevant organizations and institutions on an ongoing basis.

(4) *REPORT TO CONGRESS.*—Upon completion, the Secretary shall transmit the strategic plan required under paragraph (2)(C) to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science, Space, and Technology of the House of Representatives.

(5) *HOLLINGS MANUFACTURING EXTENSION PARTNERSHIP.*—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.

(6) *DETAILEES.*—Any Federal Government employee may be detailed to the National Program Office without reimbursement. Such detail shall be without interruption or loss of civil service status or privilege.

(f) *REPORTING AND AUDITING.*—

(1) *ANNUAL REPORTS TO THE SECRETARY.*—

(A) *IN GENERAL.*—The Secretary of Commerce shall require each recipient of financial assistance under subsection (d)(1) 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) *ELEMENTS.*—Each report submitted under subparagraph (A) shall include—

(i) an accounting of expenditures of amounts awarded to the recipient under subsection (d)(1); and

(ii) consistent with the metrics-based performance measures developed and implemented by the Secretary under this section, a description of the performance of the center for manufacturing innovation with respect to—

(I) its goals, plans, financial support, and accomplishments; and

(II) how the center for manufacturing innovation has furthered or failed to meet the purposes described in subsection (a)(2).

(2) *ANNUAL REPORTS TO CONGRESS.*—

(A) *IN GENERAL.*—Not less frequently than once each year, 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) a summary and assessment of the reports received by the Secretary under paragraph (1);

(ii) an accounting of the funds expended by the Secretary under the Program, including any temporary exemptions granted from the requirements of subsection (d)(5)(C);

(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); and

(iv) *an assessment of the Program with respect to meeting the purposes described in subsection (a)(2).*

(3) *BIENNIAL ASSESSMENT BY GAO.—*

(A) *IN GENERAL.—Not less frequently than once every 2 years, the Comptroller General of the United States shall submit to Congress an assessment of the operation of the Program during the most recent 2-year period, including a final report regarding the overall success of the Program.*

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

(i) *a review of the management, coordination, and industry utility of the Program;*

(ii) *an assessment of the extent to which the Program has furthered the purposes described in subsection (a)(2);*

(iii) *such recommendations for legislative and administrative action as the Comptroller General considers appropriate to improve the Program; and*

(iv) *an assessment as to whether any prior recommendations for improvement made by the Comptroller General have been implemented or adopted.*

(g) *ADDITIONAL AUTHORITIES.—*

(1) *APPOINTMENT OF PERSONNEL AND CONTRACTS.—The Secretary of Commerce may appoint such personnel and enter into such contracts, financial assistance agreements, and other agreements as the Secretary considers necessary or appropriate to carry out the Program, including support for research and development activities involving a center for manufacturing innovation.*

(2) *TRANSFER OF FUNDS.—The Secretary may transfer to other Federal agencies such sums as the Secretary considers necessary or appropriate to carry out the Program. No funds so transferred may be used to reimburse or otherwise pay for the costs of financial assistance incurred or commitments of financial assistance made prior to the date of enactment of the Revitalize American Manufacturing and Innovation Act of 2014.*

(3) *AUTHORITY OF OTHER AGENCIES.—In the event that the Secretary exercises the authority to transfer funds to another agency under paragraph (2), such agency may award and administer, under the same conditions and constraints applicable to the Secretary, all aspects of financial assistance awards under this section.*

(4) *USE OF RESOURCES.—In furtherance of the purposes of the Program, the Secretary may use, with the consent of a covered entity and with or without reimbursement, the land, services, equipment, personnel, and facilities of such covered entity.*

(5) *ACCEPTANCE OF RESOURCES.—In addition to amounts appropriated to carry out the Program, the Secretary may accept funds, services, equipment, personnel, and facilities from any covered entity to carry out the Program, subject to the same conditions and constraints otherwise applicable to the Secretary under this section.*

(6) *COVERED ENTITY.*—For purposes of this subsection, a covered entity is any Federal department, Federal agency, instrumentality of the United States, State, local government, tribal government, Territory or possession of the United States, or of any political subdivision thereof, or international organization, or any public or private entity or individual.

(h) *PATENTS.*—Chapter 18 of title 35, United States Code, shall apply to any funding agreement (as defined in section 201 of that title) awarded to new or existing centers for manufacturing innovation.

(i) *FUNDING.*—

(1) *NETWORK FOR MANUFACTURING INNOVATION FUND.*—

(A) *ESTABLISHMENT.*—There is established in the Treasury of the United States a fund to be known as the “Network for Manufacturing Innovation Fund” (referred to in this subsection as the “Fund”).

(B) *ELEMENTS.*—There shall be deposited in the Fund, which shall constitute the assets of the Fund, amounts appropriated or otherwise made available to carry out the Program.

(C) *AVAILABILITY.*—Amounts deposited in the Fund shall be available to the Secretary of Commerce, at the discretion of the Secretary, or the Secretary’s designee, to carry out the Program without further appropriation and without fiscal year limitation.

(2) *AUTHORIZATION OF APPROPRIATIONS.*—There is authorized to be appropriated \$300,000,000 to the Secretary of Commerce to be deposited in the Fund established under paragraph (1) to carry out this section.

(3) *ADMINISTRATIVE EXPENSES.*—The Secretary of Commerce may use not more than 5 percent of the amounts appropriated pursuant to paragraph (2) to pay the salaries and expenses of those Federal employees in the National Program Office.

(4) *ADDITIONAL FUNDING SOURCES.*—Notwithstanding any other provision of law, in addition to any funds appropriated under paragraph (2), the Secretary of Commerce may use not more than 10 percent of the funds of any economic development, manufacturing, or small business assistance program, except for the Hollings Manufacturing Extension Program, to carry out the Program established in this section.

(5) *RESCISSION.*—There is hereby rescinded, from appropriated discretionary funds that remain available for obligation as of the date of the enactment of the Revitalize American Manufacturing and Innovation Act of 2014, \$300,000,000.

(j) *CONSOLIDATION OF ADVANCED MANUFACTURING TECHNOLOGY CONSORTIA (AMTECH) PROGRAM.*—The Secretary is directed to merge the Advanced Manufacturing Technology Consortia (AMTech) Program, which has not been previously authorized but has been funded in both fiscal year 2013 and 2014, into the Program established in this section.

(k) *SUNSET.*—The authority to provide financial assistance to establish or support a center for manufacturing innovation under subsection (i) terminates effective December 31, 2024, but the Program and the Network established under this section may continue to op-

erate, subject to the availability of appropriations, if the Secretary determines that the purposes in subsection (a)(2) are being met.

SEC. [34]35.

[15 U.S.C. 271 note]

This Act may be cited as the National Institute of Standards and Technology Act.

AMERICA COMPETES REAUTHORIZATION ACT OF 2010

SEC. 102. COORDINATION OF ADVANCED MANUFACTURING RESEARCH AND DEVELOPMENT.

[42 U.S.C. 6622]

(a) **INTERAGENCY COMMITTEE.**—The Director shall establish or designate a Committee on Technology under the National Science and Technology Council. The Committee shall be responsible for planning and coordinating Federal programs and activities in advanced manufacturing research and development. *In furtherance of the Committee's work, the Committee shall consult with the National Economic Council.*

(b) **RESPONSIBILITIES OF COMMITTEE.**—The Committee shall—

(1) coordinate the advanced manufacturing research and development programs and activities of the Federal agencies;

(2) establish goals and priorities for advanced manufacturing research and development that will strengthen United States manufacturing;

(3) work with industry organizations, Federal agencies, and Federally Funded Research and Development Centers not represented on the Committee, to identify and reduce regulatory, logistical, and fiscal barriers within the Federal government and State governments that inhibit United States manufacturing;

(4) facilitate the transfer of intellectual property and technology based on federally supported university research into commercialization and manufacturing;

(5) identify technological, market, or business challenges that may best be addressed by public-private partnerships, and are likely to attract both participation and primary funding from industry;

(6) encourage the formation of public-private partnerships to respond to those challenges for transition to United States manufacturing; and

[(7) develop, and update every 5 years, a strategic plan to guide Federal programs and activities in support of advanced manufacturing research and development, which shall—

[(A) specify and prioritize near-term and long-term research and development objectives, the anticipated time frame for achieving the objectives, and the metrics for use in assessing progress toward the objectives;

[(B) specify the role of each Federal agency in carrying out or sponsoring research and development to meet the objectives of the strategic plan;

[(C) describe how the Federal agencies and Federally Funded Research and Development Centers supporting advanced manufacturing research and development will fos-

ter the transfer of research and development results into new manufacturing technologies and United States based manufacturing of new products and processes for the benefit of society to ensure national, energy, and economic security;

[(D) describe how Federal agencies and Federally Funded Research and Development Centers supporting advanced manufacturing research and development will strengthen all levels of manufacturing education and training programs to ensure an adequate, well-trained workforce;

[(E) describe how the Federal agencies and Federally Funded Research and Development Centers supporting advanced manufacturing research and development will assist small- and medium-sized manufacturers in developing and implementing new products and processes; and

[(F) take into consideration the recommendations of a wide range of stakeholders, including representatives from diverse manufacturing companies, academia, and other relevant organizations and institutions.]

(7) develop and update a national strategic plan for advanced manufacturing in accordance with subsection (c).

[(c) REPORT.—Not later than 1 year after the date of enactment of this Act, the Director shall transmit the strategic plan developed under subsection (b)(7) to the Senate Committee on Commerce, Science, and Transportation, and the House of Representatives Committee on Science and Technology, and shall transmit subsequent updates to those committees as appropriate.]

(c) NATIONAL STRATEGIC PLAN FOR ADVANCED MANUFACTURING.—

(1) IN GENERAL.—The President shall submit to Congress, and publish on an Internet website that is accessible to the public, the strategic plan developed under paragraph (2).

(2) DEVELOPMENT.—The Committee shall develop and update as required under paragraph (4), in coordination with the National Economic Council, a strategic plan to improve Government coordination and provide long-term guidance for Federal programs and activities in support of United States manufacturing competitiveness, including advanced manufacturing research and development.

(3) CONTENTS.—The strategic plan described in paragraph (2) shall—

(A) specify and prioritize near-term and long-term objectives, including research and development objectives, the anticipated time frame for achieving the objectives, and the metrics for use in assessing progress toward the objectives;

(B) describe the progress made in achieving the objectives from prior strategic plans, including a discussion of why specific objectives were not met;

(C) specify the role, including the programs and activities, of each relevant Federal agency in meeting the objectives of the strategic plan;

(D) describe how the Federal agencies and Federally funded research and development centers supporting ad-

vanced manufacturing research and development will foster the transfer of research and development results into new manufacturing technologies and United States based manufacturing of new products and processes for the benefit of society to ensure national, energy, and economic security;

(E) describe how such Federal agencies and centers will strengthen all levels of manufacturing education and training programs to ensure an adequate, well-trained workforce;

(F) describe how such Federal agencies and centers will assist small- and medium-sized manufacturers in developing and implementing new products and processes;

(G) analyze factors that impact innovation and competitiveness for United States advanced manufacturing, including—

(i) technology transfer and commercialization activities;

(ii) the adequacy of the national security industrial base;

(iii) the capabilities of the domestic manufacturing workforce;

(iv) export opportunities and trade policies;

(v) financing, investment, and taxation policies and practices;

(vi) emerging technologies and markets; and

(vii) advanced manufacturing research and development undertaken by competing nations; and

(H) elicit and consider the recommendations of a wide range of stakeholders, including representatives from diverse manufacturing companies, academia, and other relevant organizations and institutions.

(4) UPDATES.—Not later than May 1, 2018, and not less frequently than once every 4 years thereafter, the President shall submit to Congress, and publish on an Internet website that is accessible to the public, an update of the strategic plan submitted under paragraph (1). Such updates shall be developed in accordance with the procedures set forth under this subsection.

(5) REQUIREMENT TO CONSIDER STRATEGY IN THE BUDGET.—In preparing the budget for a fiscal year under section 1105(a) of title 31, United States Code, the President shall include information regarding the consistency of the budget with the goals and recommendations included in the strategic plan developed under this subsection applying to that fiscal year.

(6) AMP STEERING COMMITTEE INPUT.—The Advanced Manufacturing Partnership Steering Committee of the President's Council of Advisors on Science and Technology shall provide input, perspective, and recommendations to assist in the development and updates of the strategic plan under this subsection.