

National Institute of Standards and Technology

The mission of the National Institute of Standards and Technology (NIST) is to promote U.S. innovation and industrial competitiveness by advancing measurement science, standards and technology in ways that improve economic security and our quality of life. NIST develops and disseminates measurement techniques, reference data, test methods, standards, and other technologies and services needed by U.S. industry to compete in the 21st century.

NIST Laboratories are part of the President's Plan for Science and Innovation that, consistent with the goals of the America COMPETES Reauthorization Act of 2010, proposes to double funding for research at key basic research agencies. The FY 2012 budget request proposes more than \$100 million above the FY 2010 enacted level to support NIST's two core programs that are critical to promoting American innovation and competitiveness:

- The **NIST Laboratories** directly support U.S. innovation and industrial competitiveness by developing new measurement instruments and facilities to address critical barriers to innovation; disseminating validated measurement methods and protocols; providing reference data, reference materials, and calibration services to ensure that industry-performed measurements are traceable to NIST standards; and developing testing protocols and supporting laboratory accreditation programs. The request includes a net program increase of \$168 million for NIST Laboratories and User Facilities, including the redirection of administrative savings to laboratory programs and excluding congressionally directed projects.
- NIST's **Construction of Research Facilities (CRF)** appropriation supports projects for new buildings and the renovation and maintenance of current buildings and laboratories. The CRF account has a net program change of -\$41.6 million. Under CRF, NIST will drop-out \$47 million in FY 2010 congressionally designated projects and also not continue to fund the \$20 million for the congressionally directed competitive construction grants program. The request includes an increase of \$25.4 million for the renovation of Building 1 in Boulder, Colorado.

NIST's FY 2012 request for these core programs total \$763.5 million, a net increase of \$111.1 million.

NIST also has four extramural programs supported by the FY 2012 budget request.

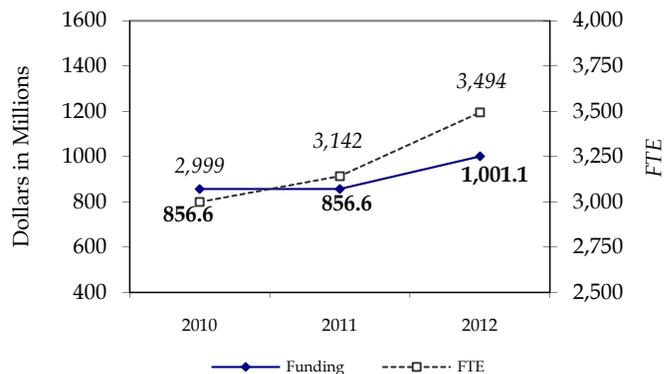
Hollings Manufacturing Extension Partnership (MEP)

The request continues the Administration's commitment to increase funding for the Hollings Manufacturing Extension Partnership (MEP) program. Through public (Federal-state-local) and private sector partnerships, MEP provides technical and business assistance to small- and medium-sized manufacturers through a network of centers in all 50 states and Puerto Rico. The request includes a program increase of \$17.6 million for MEP.

Technology Innovation Program (TIP)

The TIP statute originated in the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Sciences (COMPETES) Act of 2007 (P.L. 110-69). The COMPETES Act was recently reauthorized as the America COMPETES Reauthorization Act of 2010 (P.L. 111-358). TIP was established to support, promote, and accelerate

Appropriation and FTE



innovation in the United States through high-risk, high-reward research in areas of critical national need. The merit-based competitive program funds cost-shared R&D projects by small- or medium-sized businesses, as well as joint ventures that may include higher education institutions, nonprofit research organizations, and national laboratories. Areas that TIP has supported include civil infrastructure, manufacturing and biomanufacturing. TIP aims to speed the development of high-risk, transformative research targeted to key societal challenges that are not being addressed elsewhere. The request includes a program increase of \$5.2 million for TIP.

Advanced Manufacturing Technology Consortia (AMTech) Program

The request includes \$12.3 million for a new Advanced Manufacturing Technology Consortia (AMTech) that will provide grants to leverage existing consortia or establish critical new industry-led consortia. These consortia will develop road-maps of critical long-term industrial research needs as well as fund facilities, equipment and research at leading universities and government laboratories directed at meeting these needs. This new program would be based on NIST's experience with the Nanoelectronics Research Initiative (NRI) partnership and would expand and improve on that model.

Baldrige Performance Excellence Program (BPEP)

The Baldrige Performance Excellence Program (BPEP) provides global leadership in the learning and sharing of successful strategies and performance practices, principles, and methodologies to strengthen U.S. organizations. The program promotes organizational excellence through education, outreach, and an annual Presidential awards program. The Baldrige Award is given to organizations in six categories: manufacturing, service, small business, health care, education, and nonprofit. BPEP works closely with these organizations to recognize and disseminate proven best practices for management and operation, leading to organizations that are more strategic, innovative, competitive, and effective. The request includes \$7.7 million, \$1.9 million below the FY 2010 enacted level, for criteria development, best practices disseminations, and the award process. In FY 2012 NIST proposes to work with stakeholders to evaluate alternative sources of funding and reforms that would generate efficiencies and reduce program overhead. While the program has been useful in disseminating information on organizational excellence, the program's functions could be supported without Federal funding, following a careful transition.

The initiatives in the *Highlights of Program Changes* under STRS, CRF, and ITS outline the Administration's FY 2012 investment priorities for NIST.

Summary of Appropriations

Funding Levels

	2010	2011 CR	2012	Increase
Appropriation	<u>Actual</u>	<u>(Annualized)</u>	<u>Estimate</u>	<u>(Decrease)</u>
DISCRETIONARY ACCOUNTS				
Scientific and Technical Research and Services	\$515,000	\$515,000	\$678,943	\$163,943
Recovery Act	0	0		0
Industrial Technology Services	194,600	194,600	237,622	43,022
Construction of Research Facilities	147,000	147,000	84,565	(62,435)
Total Appropriation, Discretionary Accounts	<u>856,600</u>	<u>856,600</u>	<u>1,001,130</u>	<u>144,530</u>
Transfers of funds from Election Assistance	3,500	3,500	3,250	(250)
Transfers of funds from Community Oriented	1,500	1,500	0	(1,500)
Working Capital Fund, STRS	[1,443]	[0]	[8,834]	
Budget Authority				
Scientific and Technical Research and Services	520,000	520,000	682,193	162,193
Industrial Technology Services	194,600	194,600	237,622	43,022
Construction of Research Facilities	147,000	147,000	84,565	(62,435)
TOTAL, BUDGET AUTHORITY	<u>861,600</u>	<u>861,600</u>	<u>1,004,380</u>	<u>142,780</u>
Reorganization from STRS		(9,627)		
Reorganization to IIS		9,627		
Budget Authority (Revised)				
Scientific and Technical Research and Services	520,000	510,373	682,193	171,820
Industrial Technology Services	194,600	204,227	237,622	33,395
Construction of Research Facilities	147,000	147,000	84,565	(62,435)
TOTAL, BUDGET AUTHORITY	<u>861,600</u>	<u>861,600</u>	<u>1,004,380</u>	<u>142,780</u>
FTE				
DISCRETIONARY ACCOUNTS				
Scientific and Technical Research and Services	2,064	2,072	2,421	349
Industrial Technology Services	158	210	199	(11)
Construction of Research Facilities	119	119	119	0
Working Capital Fund	658	741	755	14
Total	<u>2,999</u>	<u>3,142</u>	<u>3,494</u>	<u>352</u>

Highlights of Budget Changes

Appropriation: Scientific and Technical Research and Services

Summary of Requirements

	<u>Detailed</u>		<u>Summary</u>	
	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>
2011 CR (Annualized)			2,124	\$515,000
Reorganization to ITS			(52)	(9,627)

Adjustments to Base

Adjustments

Restoration of FY 2011 deobligation offset	\$1,000		
Restoration of FY 2011 adjustments to base	7,779		
Subtotal, Adjustments		0	8,779

Other Changes

Civil Service Retirement System (CSRS)	(237)		
Federal Employees' Retirement System (FERS)	396		
Thrift Savings Plan (TSP)	5		
Federal Insurance Contribution Act (FICA) - OASDI	(169)		
Health Insurance	941		
Employees' Compensation Fund	(54)		
Travel - Mileage	(1)		
Travel - Per Diem	325		
Rental Payments to GSA	1		
HCHB electricity	1		
Electricity rate decrease	(2,701)		
Natural Gas rate decrease	(2,949)		
Other services:			
Commerce Business Systems (CBS)	139		
NARA storage costs	2		
Working Capital Fund (Departmental Management)	288		
Supplies and materials:			
Scientific journal subscriptions	119		
Helium rate increase	69		
General pricing level adjustment:			
Transportation of things	15		
Rental payments to others	12		
Communications, utilities, and miscellaneous charges	42		
Printing and reproduction	5		
Other services	755		
Supplies and materials	262		
Equipment	557		
Subtotal, other cost changes		0	(2,177)

TOTAL, ADJUSTMENTS TO BASE

2012 Base

		0	6,602
Administrative Savings			[11,569]
Program Changes		349	167,968
TOTAL REQUIREMENTS		2,421	679,943
Recoveries from Prior Year Obligations			(1,000)
2012 APPROPRIATION		2,421	678,943

Note: The distribution of administrative savings reflected in this table is based on current estimates. As the review and implementation processes proceed, the distribution of these savings may change.

Comparison by Activity

	2011 Currently Avail.		2012 Base		2012 Estimate		Increase / Decrease	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
DIRECT OBLIGATIONS								
Laboratory Programs								
Strategic & emerging research initiative fund	33	\$10,640	33	\$9,823	33	\$9,823	0	0
Physical Measurement Laboratory	492	122,949	492	124,416	542	146,701	50	\$22,285
Material Measurement laboratory	427	99,515	427	99,962	492	132,479	65	32,517
Engineering Laboratory	256	62,668	256	62,328	303	91,387	47	29,059
Information Technology Laboratory	346	83,696	346	68,143	446	126,227	100	58,084
NIST Center for Neutron Research	165	41,894	165	42,193	165	42,193	0	0
Center for Nanoscale Science & Technology	80	28,191	80	27,741	108	42,152	28	14,411
Innovations in Measurement Science Program	73	20,343	73	20,404	73	20,404	0	0
Postdoctoral Research Associates Program	92	11,544	92	11,303	109	14,282	17	2,979
Subtotal, Laboratory Programs	1,964	481,440	1,964	466,313	2,271	625,648	307	159,335
Corporate Services								
Computer Support	7	6,627	7	6,467	7	6,467	0	0
Business System	34	11,076	34	10,767	34	10,767	0	0
Research Support Services	11	2,119	11	2,379	11	2,379	0	0
Subtotal, Corporate Services	52	19,822	52	19,613	52	19,613	0	0
Standards Coordination and Special Programs								
Standards Coordination and Special Programs	56	18,542	56	15,549	98	29,098	42	13,549
Congressionally Directed Projects	0	10,500	0	10,500	0	0	0	(10,500)
Subtotal, Standards Coordination and Special Programs	56	29,042	56	26,049	98	29,098	42	3,049
TOTAL DIRECT OBLIGATIONS	2,072	530,304	2,072	511,975	2,421	674,359	349	162,384
REIMBURSABLE OBLIGATIONS:								
NTIA Convert Box and BTOP		827					0	0
TOTAL OBLIGATIONS	2,072	531,131	2,072	511,975	2,421	674,359	349	162,384
FINANCING								
Unobligated balance, start of year - direct		(18,931)					0	0
Unobligated balance, start of year - reimbursable		(827)						
Recovery of prior year obligations		(1,000)		(1,000)		(1,000)	0	0
Subtotal, financing	0	(20,758)	0	(1,000)	0	(1,000)	0	0
TOTAL BUDGET AUTHORITY	2,072	510,373	2,072	510,975	2,421	673,359	349	162,384
Transfers from EAC		(3,500)		0		(3,250)		(3,250)
Transfers from COPS, DoJ		(1,500)		0		0		0
Transfers to Working Capital Fund						8,834	0	8,834
Reorganization	52	9,627		0		0	0	0
TOTAL APPROPRIATION	2,124	515,000	2,072	510,975	2,421	678,943	349	167,968

Administrative Savings

The Administration is pursuing an aggressive government-wide effort to curb non-essential administrative spending called the Administrative Efficiency Initiative. In order to be good stewards of taxpayer money the Federal Government should continue to seek ways to improve the efficiency of programs without reducing their effectiveness. As such, the President directed each agency to analyze its administrative costs and identify savings where possible. After reviewing its administrative costs, NIST has identified \$11,569,000 in administrative savings. NIST has targeted a number of areas to

achieve these savings. Of these savings, \$6,406,000 is tied to more efficient acquisition processes for FY 2012. In the area of human capital and general administrative support, NIST expects to reduce its costs by \$4,481,000 by keeping its administrative budgets relatively flat from FY 2011 to FY 2012. NIST identified savings of \$364,000 in utilities and travel. And an additional \$318,000 in savings was identified through the Department’s Working Capital Fund (see the Departmental Management Working Capital Fund section for more details). Portions of the administrative savings are reinvested back into additional laboratory program initiatives that will benefit the economy and better support the Department’s mission.

Highlights of Program Changes

Note that increase/decrease amounts are net of administrative cost savings.

	<u>Base</u>		<u>Increase / Decrease</u>	
	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>
<u>Measurement Science, Services, and Programs</u>	2,072	\$510,975	+349	+\$167,968
1. Ensuring a Secure and Robust Cyber Infrastructure			+67	+\$43,442

The request would provide improvements to cybersecurity in support of the Comprehensive National Cybersecurity Initiative (CNCI), the Federal Information Security Management Act (FISMA), and other national priorities such as the Administration’s National Strategy for Trusted Identities for Cyberspace (NSTIC) and National Initiative for Cybersecurity Education (NICE). This initiative includes \$24.5 million to support an NSTIC National Program Office to help foster an environment in which sensitive online transactions can be carried out with greater levels of trust.

2. Interoperability Standards for Emerging Technologies			+69	+\$22,835
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This initiative funds efforts to catalyze the development of standards and conformity assessment systems and associated architectural frameworks for emerging technologies that address national priorities such as Smart Grid, Healthcare Information Technology (Health IT) and Cloud Computing (CC).

3. Strengthening Measurement Services in Support of Industry Needs			+37	+\$20,016
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Funds requested will strengthen the national time and synchronization measurement system which underpins a substantial part of the national and global technology infrastructure, such as telecommunications and information networks, electric power distribution, positioning and navigation systems such as GPS, and many crucial applications in national defense, intelligence, and homeland security. Funds will also be used to update and expand the electrical measurement infrastructure required to support the measurement needs of other Federal agencies, especially the Department of Defense (DoD) and Department of Energy (DoE), which rely upon NIST to provide the primary traceability path for precision measurements for defense and nuclear programs. The advances and capabilities developed by the proposed programs will also meet the ever increasing measurement demands of high-tech industries, such as aerospace, semiconductor, electronics, and test equipment manufacturers.

4. Advanced Materials for Industry			+23	+\$14,242
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This request funds efforts to develop the measurement science, tools and standards necessary to enable greatly improved efficiency in the Nation’s development and manufacture of new products and services based on innovative materials. The funds would enable NIST to extend its expertise in the development and use of materials modeling and simulation directed at manufacturing, and to create a National measurement and standards infrastructure that would substantially lower the cost of design and manufacturing for industries seeking to realize the benefits of computer-based materials discovery and optimization.

5. Innovations for 21st Century U.S. Manufacturing: Faster, Smarter and Cleaner	+18	+\$13,331
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This initiative funds effort to develop the measurement science, tools and standards that will provide the infrastructure for manufacturing that is faster, more intelligent and more environmentally sustainable. Funds requested also support efforts to develop advanced robotics technologies that allow the U.S. to retain manufacturing and respond rapidly to new products and changes in consumer demand, and will fund programs that will promote sustainable operations and improve energy efficiency in both the manufacturing and construction sectors of the economy.

6. Measurement Science and Standards to Support Biomanufacturing	+18	\$9,526
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This initiative funds efforts to create the measurement and standards infrastructure necessary for efficient and effective manufacture and characterization of biologic drugs. Within the current manufacturing paradigm for the biotechnology industry, manufacturing costs are high, production efficiency is low, process understanding is limited, and manufacturing processes and product quality remain largely frozen. This NIST initiative will develop measurement methods, protocols, and standards for improved, real-time measurement of biologic products during manufacturing. NIST will work closely with industry, the Food and Drug Administration, and other standards organizations with the goal of developing metrology infrastructure to achieve greater process understanding, higher quality biologic products through continuous improvement of manufacturing processes, and agile biomanufacturing processes required for next generation products such as stem cells and personalized biotherapeutics.

7. Measurements to Support the Manufacture and Production of Nanotechnology-based Products	+58	\$28,256
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This initiative supports a number of projects and improvements that will enable industry to fully take advantage of recent innovations in nanotechnology. Economic recovery and economic growth are the pre-eminent priorities for the Department of Commerce and the Administration. A strong economy hinges on revitalizing U.S. manufacturing by fostering innovation, commercializing new products, and creating new jobs. This initiative focuses on addressing four key areas that will enable significant innovations and breakthroughs in manufacturing through adoption and development of nanotechnology. The key areas are (1) recapitalization of the NIST Center for Nanoscale Science and Technology, (2) Nanomaterial Environmental, Health and Safety (Nano-EHS), (3) High-Volume Nanomanufacturing with Advanced Materials, and (4) Measurements to Enable the Manufacture of Advanced 3rd Generation Photovoltaics.

8. Measurements and Standards to Support Increased Energy Efficiency and Reduced Environmental Impact	+23	+\$13,270
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Developing innovative energy technologies is an important component to reducing energy usage and greenhouse gas emissions that can negatively impact the climate. To assess whether these new technologies are truly reducing energy usage and greenhouse gas emissions, high-accuracy measurement techniques and standards are necessary. To address both of these issues, this request focuses on two high-priority areas: (1) net-zero energy, high-performance buildings and (2) greenhouse gas inventory measurements.

9. Measurements to Support Advanced Infrastructure Delivery and Resilience	+19	+\$10,571
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This request funds efforts to provide improvements to our physical infrastructure that will increase the resilience of our building infrastructure to damage from earthquake, windstorms, and fire. Funds will additionally provide for research that will enable U.S. industry to improve productivity by transforming the delivery of construction and infrastructure projects.

10. Postdoctoral Research Associateship Program	+17	+\$2,979
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The Administration continues to be committed to strengthening science, technology, engineering, and mathematics (STEM) education. The request will increase the number of postdoctoral research opportunities at NIST.

11. Non-Recurring Congressional Projects		-\$10,500
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NIST will not recur amounts provided previously for congressionally directed projects.

STRS Initiative Name	Physical Measurement Laboratory	Material Measurement Laboratory	Engineering Laboratory	Information Technology Laboratory	Center for Nanoscale Science and Technology	Postdoctoral Research Associates Program	Standards Coordination and Special Programs	External Projects	Working Capital Fund	Total*
Ensuring a Secure and Robust Cyber Infrastructure				\$42,140					\$1,302	\$43,442
Interoperability Standards for Emerging Technologies				\$9,134			\$13,549		\$152	\$22,835
Strengthening Measurement Services in Support of Industry Needs	\$16,916								\$3,100	\$20,016
Advanced Materials for Industry		\$10,682		\$3,560						\$14,242
Innovations for 21st Century U.S. Manufacturing: Faster, Smarter and Cleaner			\$13,331							\$13,331
Measurement Science and Standards to Support Biomanufacturing		\$7,276							\$2,250	\$9,526
Measurements to Support the Manufacture and Production of Nanotechnology-based Products	\$5,369	\$8,476			\$14,411					\$28,256
Measurements and Standards to Support Increased Energy Efficiency and Reduced Environmental Impact		\$6,083	\$5,687						\$1,500	\$13,270
Measurements to Support Advanced Infrastructure Delivery and Resilience			\$10,041						\$530	\$10,571
Postdoctoral Research Associateship Program						\$2,979				\$2,979
Dropout of Directed Grants								(\$10,500)		(\$10,500)
STRS TOTAL	\$22,285	\$32,517	\$29,059	\$54,834	\$14,411	\$2,979	\$13,549	(\$10,500)	\$8,834	\$167,968

*Total amounts reflect administrative savings taken and reinvested in program initiatives.

Appropriation: Construction of Research Facilities**Summary of Requirements**

	<u>Detailed</u>		<u>Summary</u>	
	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>
2011 CR (Annualized)			119	\$147,000
Adjustments to Base				
<u>Adjustments</u>				
Restoration of FY 2011 ATBs		\$574		
Construction and major renovations cost		(22,000)		
Subtotal, adjustments			0	(21,426)
<u>Other Changes</u>				
Full year cost in FY 2012 of positions financed in FY 2011				
Civil Service Retirement System (CSRS)		(11)		
Federal Employees' Retirement System (FERS)		18		
Federal Insurance Contribution Act (FICA) - OASDI		(8)		
Health Insurance		48		
Employees' Compensation Fund		22		
Travel - Per Diem		2		
General pricing level adjustment:				
Communications, utilities, and miscellaneous charges		1		
Other services		496		
Supplies and materials		40		
Equipment		2		
Subtotal, other cost changes			0	610
TOTAL, ADJUSTMENTS TO BASE			0	(20,816)
2012 Base			119	126,184
Program Changes			0	(41,619)
2012 APPROPRIATION			119	84,565

Comparison by Activity

	2011 Currently Avail.		2012 Base		2012 Estimate		Increase / Decrease	
	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>
DIRECT OBLIGATIONS								
Construction & Major Renovations	119	\$180,004	119	\$126,184	119	\$84,565	0	(\$41,619)
TOTAL DIRECT OBLIGATIONS	119	180,004	119	126,184	119	84,565	0	(41,619)
REIMBURSABLE OBLIGATIONS		953					0	0
TOTAL OBLIGATIONS	119	180,957	119	126,184	119	84,565	0	(41,619)
FINANCING								
Unobligated balance, start of year (Direct)		(33,004)				0		
Offsetting collections from:								
Non-Federal sources		(953)				0		
Subtotal, financing		(33,957)				0		
TOTAL BUDGET AUTHORITY/ APPROPRIATION	119	147,000			119	84,565		

Highlights of Program Changes

	<u>Base</u>		<u>Increase / Decrease</u>	
	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>
<u>Construction and major renovations</u>	119	\$126,184	0	-\$41,619
Renovation of Building 1 at NIST in Boulder, Colorado			+0	+\$25,381

NIST requests an increase to continue with the long-term plan to renovate Building 1 of the NIST Boulder, Colorado laboratories, which houses the majority of NIST Boulder research and measurement. The FY 2012 initiative for approximately \$25.4 million will complete the interior renovations of Wings 3, 5, and a portion of Wing 6. The remaining interior wing renovations will be completed with future funding requests.

Reductions -\$67,000

NIST requests a decrease of \$47 million to terminate the funding level that would continue under an annualized FY 2011 continuing resolution associated with the congressionally directed projects identified in the Conference Report that accompanied the Consolidated Appropriations Act, 2010. In addition, NIST proposes to terminate \$20 million for the competitive construction grant program provided in the Act.

Appropriation: Industrial Technology Services

Summary of Requirements

	<u>Detailed</u>		<u>Summary</u>	
	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>
2011 CR (Annualized)			158	\$194,600
Reorganization from STRS			52	9,627
Adjustments to Base				
<u>Adjustments</u>				
Restoration of FY 2011 ATBs		\$434		
Restoration of FY 2011 Deobligation Offset		3,800		
Subtotal, adjustments				4,234
<u>Other Changes</u>				
Full year cost in FY 2012 of positions financed in FY 2011				
Civil Service Retirement System (CSRS)		(26)		
Federal Employees' Retirement System (FERS)		43		
Thrift Savings Plan (TSP)		18		
Federal Insurance Contribution Act (FICA) - OASDI		(18)		
Health Insurance		103		
Travel - Per Diem		27		
Communications, utilities, and miscellaneous charges:				
Electricity rate decrease		(180)		
Natural Gas rate decrease		(212)		
General pricing level adjustment:				
Transportation of things		1		
Rental payments to others		2		
Communications, utilities, and miscellaneous charges		6		
Other services		151		
Supplies and materials		9		
Equipment		13		
Subtotal, other cost changes			0	(63)
TOTAL, ADJUSTMENTS TO BASE			0	4,171
2012 Base			210	208,398
Program Changes			(11)	33,024
TOTAL REQUIREMENTS			199	241,422
Recoveries from Prior Year Obligations				(3,800)
2012 APPROPRIATION			199	237,622

Comparison by Activity

	2011 Currently Avail.		2012 Base		2012 Estimate		Increase / Decrease	
	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>
DIRECT OBLIGATIONS								
Technology Innovation Program	80	\$104,479	80	\$73,587	80	\$78,773	0	\$5,186
Advanced Manufacturing Technology Consortia	0	0	0	0	1	12,306	1	\$12,306
Hollings Manufacturing Extension Partnership Program	78	125,669	78	124,967	80	142,616	2	\$17,649
Baldrige Performance Excellence Program	52	9,627	52	9,844	38	7,727	(14)	(\$2,117)
TOTAL DIRECT OBLIGATIONS	210	239,775	210	208,398	199	241,422	(11)	33,024
FINANCING								
Unobligated balance, start of year		(31,748)						
Recovery of prior obligations		(3,800)		(3,800)		(3,800)		
Subtotal, financing		(35,548)		(3,800)		(3,800)		
TOTAL BUDGET AUTHORITY	210	204,227	210	204,598	199	237,622		
Reorganization	(52)	(9,627)		0		0		
TOTAL APPROPRIATION	158	194,600	210	204,598	199	237,622		

Highlights of Program Changes

	<u>Base</u>		<u>Increase / Decrease</u>	
	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>
<u>Industrial Technology Services</u>	210	\$204,598	-11	+\$33,024
Technology Innovation Program (TIP)	80	\$69,787	+0	+\$5,186

TIP was established to help U.S. businesses, institutions of higher education, and other organizations—such as national laboratories and nonprofit research institutes—to support, promote, and accelerate innovation in the United States through high-risk, high-reward research in areas of critical national need. Areas that TIP has supported include civil infrastructure, and manufacturing and biomanufacturing. TIP aims to speed the development of high-risk, transformative research targeted to key societal challenges that are not being addressed elsewhere. The request includes a program increase of \$5.2 million for TIP.

Advanced Manufacturing Technology Consortia (AMTech) Program	+1	+\$12,306
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The request includes \$12.3 million for the new Advanced Manufacturing Technology Consortia (AMTech) program that will provide grants to leverage existing consortia or establish critical new industry-led consortia. These consortia will develop road-maps of critical long-term industrial research needs as well as fund facilities, equipment and research at leading universities and government laboratories directed at meeting these needs. This new program would be based on NIST's experience with the Nanoelectronics Research Initiative (NRI) partnership and would expand and improve on that model.

	<u>Base</u>		<u>Increase / Decrease</u>	
	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>
Hollings Manufacturing Extension Partnership (MEP) Program	78	\$124,967	+2	+\$17,649

The request also continues the Administration's commitment to increase funding for the Hollings Manufacturing Extension Partnership (MEP) program. Through public (Federal-state-local) and private sector partnerships, MEP provides technical and business assistance to small- and medium-sized manufacturers through a network of centers in all 50 states and Puerto Rico. The request includes a program increase of \$17.6 million for MEP.

Baldrige Performance Excellence Program	52	\$9,844	-14	-\$2,117
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The request includes funding for criteria development, best practices dissemination, and the annual awards process. Additionally, the Baldrige Performance Excellence Program will evaluate alternative sources of funding, consistent with the Administration's goal of transitioning the program out of Federal funding.

Appropriation: Working Capital Fund

Comparison by Activity

	2011 Currently Avail.		2012 Base		2012 Estimate		Increase / Decrease	
	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>
DIRECT OBLIGATIONS								
Direct Obligations	0	\$0		\$0		\$8,834	0	\$8,834
Reimbursable Obligations	741	\$186,403	741	\$176,261	755	176,261	14	0
WCF Investments	0	0	0	0	0	0	0	0
TOTAL OBLIGATIONS	741	186,403	741	176,261	755	185,095	14	8,834
FINANCING								
Unobligated balance, start of year		(145,229)		(145,229)		(145,229)		0
Unobligated balance, end of year		145,229		145,229		145,229		0
Offsetting collections from:								
Federal funds		(135,581)		(127,349)		(127,349)		0
Non-Federal sources		(50,822)		(48,912)		(48,912)		0
Subtotal, financing	0	(186,403)	0	(176,261)	0	(176,261)	0	0
TOTAL BUDGET AUTHORITY	741	0	741	0	755	8,834	14	8,834
TRANSFERS								
From other accounts		0				(8,834)		(8,834)
TOTAL, APPROPRIATION	741	0	741	0	755	0	14	0

Performance Objectives and Measures

(Dollars reflect obligations in Millions)

In FY 2012, in conjunction with its new strategic plan, the Department will complete the re-organization of its performance structure from three strategic goals and a management integration goal to three program themes and three administrative themes. An overview of the Strategic Plan can be found on Page 169. Goals serves as the first level below themes with objectives serving as the second level below the themes with the performance measures and funding corresponding to objectives. All of NIST's program activities support the theme of Economic Growth and two corresponding goals: Innovation and Entrepreneurship, and Market Development and Commercialization. Within these goals, NIST supports three objectives: Stimulate high growth business formation and entrepreneurship, through investments in high-risk, high-reward technologies and removing impediments to accelerate technology commercialization (Objective 3); Provide the measurement tools and standards to strengthen manufacturing, enabling innovation, and enhancing efficiency (Objective 5); and Provide services to improve the competitiveness of small and medium-sized firms in manufacturing and service industries (Objective 8). In addition, NIST programs apply to the Science and Information theme and the Workforce Excellence administrative theme, covering the following three objectives: Enhance scientific knowledge and provide information to stakeholders to improve innovation and technology, support economic growth, and improve public safety (Objective 13); Improve understanding of the U.S. economy, society, and environment by providing timely, relevant, trusted and accurate data, standards and services enabling entities to make informed decisions (Objective 14); and, Recruit, develop, and retain a high-performing, diverse workforce with the critical skills necessary for mission success, including growing the next generation of scientists and engineers (Objective 25). The following table shows the measures that NIST uses to gauge its performance.

	2010 Actual*	2011 CR (Annualized) / Targets	2012 Estimate / Targets
Objective 3: Stimulate high growth business formation and entrepreneurship, through investments in high-risk, high-reward technologies and removing impediments to accelerate technology commercialization	\$77.2	\$104.5	\$91.1**
Cumulative number of TIP Projects funded ¹	29	38 ⁶	60
Cumulative number of publications ²	60 in 2013	105 in 2014 ⁷	114 in 2015
Cumulative number of patent applications ³	30 in 2013	35 in 2014 ⁷	38 in 2015
Cumulative number of projects generating continued R&D ⁴	10 in 2013	18 in 2014 ⁷	19 in 2015
Cumulative number of projects with technologies under adoption ⁵	5 in 2013	9 in 2014 ⁷	10 in 2015
Objective 5: Provide the measurement tools and standards to strengthen manufacturing, enabling innovation, and enhancing efficiency	\$766.2	\$694.5	\$834.7
Qualitative assessment and review of technical quality and merit using peer review	Completed	Complete	Complete
Citation impact of NIST-authored publications	>1.1 ⁸	>1.1	>1.1
Peer-reviewed technical publications	1,243	1,350	1,350
Standard reference materials sold	31,667	31,000	31,000
NIST maintained datasets downloaded	25.0M	24.5M	24.5M
Number of calibration tests performed	17,697	9,700 ⁹	14,000
Objective 8: Provide services to improve the competitiveness of small and medium-sized firms in manufacturing and service industries	\$126.8	\$125.9	\$142.8
Number of clients served by MEP centers receiving Federal funding	34,299	30,000 ¹¹	34,000
Increased sales attributed to MEP centers receiving Federal funding	\$2.5B ¹⁰	\$2.0B ¹¹	\$3.3B
Capital investment attributed to MEP centers receiving Federal funding	\$1.0B ¹⁰	\$1.1B	\$1.8B
Cost savings attributed to MEP centers receiving Federal funding	\$1.2B ¹⁰	\$1.1B ¹¹	\$1.7B

	2010 Actual	2011 CR (Annualization) / Targets	2012 Estimate / Targets
Objective 13: Enhance scientific knowledge and provide information to stakeholders to improve innovation and technology, support economic growth, and improve public safety	\$528.4	\$191.6	\$94.4
Objective 14: Improve understanding of the U.S. economy, society, and environment by providing timely, relevant, trusted and accurate data, standards and services enabling entities to make informed decisions	\$10.8	\$10.1	\$8.2
Objective 25: Recruit, develop, and retain a high-performing, diverse workforce with the critical skills necessary for mission success, including growing the next generation of scientists and engineers	\$20.5	\$11.5	\$14.3
Total	\$1,529.9	\$1,138.1	\$1,185.5

*Objectives 5 and 13 include ARRA obligations for FY 2010.

**Includes \$78.8M for TIP and \$12.3M for AMTech, excludes \$100M for the Public Safety Innovation Fund (mandatory appropriations).

¹ This number reflects the number of projects funded to support areas of critical national need. Participating organizations include small and medium-sized companies, institutions of higher education, national laboratories, non-profit research institutes, and other organizations.

² The measure reflects scientific knowledge being generated from the funding. Publications include academic journals, conference proceedings, and other publications. The measure also reflects the dissemination of the science benefiting other organizations outside of the project participants. Projections are based on historic data from similar R&D programs. This lagging measure assumes that publications will be generated by the third year of project research.

³ The measure reflects an additional metric of valuable knowledge and science generated from the funded research. Projections are based on historic data from similar R&D programs. This is a lagging measure and assumes that patent applications will be generated by the third year of project research.

⁴ This measure reflects the creation of transformative research whose value is demonstrated by continued R&D investment by the original researchers or by others. This is a lagging measure and is assessed after the TIP funding for the cost-shared awards has stopped (generally three years or later).

⁵ This measure reflects the implementation of the R&D efforts to benefit end users. Adoption includes testing of the research results at a beta site, licensing the technologies to others, or commercializing the technology through improved products and processes. This is a lagging measure and is assumed to be realized near the end of the project at the earliest (generally three years or later).

⁶ This updated target reflects the annualization of the FY 2011 Continuing Resolution levels.

⁷ The revised target reflects the actual information known from the 9 new TIP projects begun in FY 2011 which affect the respective outyear program performance.

⁸ The FY 2010 actual lags nine months; this estimate is based on the FY 2009 actual.

⁹ This target was decreased largely due to a new requirement that a signed Memorandum of Understanding with other federal agencies be in place prior to performing calibration tests which is expected to significantly delay the start and completion of these tests.

¹⁰ These amounts are the FY 2010 targets. The FY 2010 actuals will be available in January 2012 due to the lag time associated with collecting and analyzing the Hollings MEP client survey data six months after the services are delivered. The data in the FY 2010 PAR reflects estimated FY 2009 actuals associated with the FY 2009 funding level. The FY 2009 actuals will be available in January 2011.

¹¹ The change in these targets is based on the current economic conditions facing manufacturing clients and Centers. Impacts are expected to remain steady.

High Priority Performance Goals

High priority performance goals (HPPGs) are a clear statement of the specific, measurable, ambitious near-term priority targets chosen by the senior leaders of major federal agencies. The HPPGs communicate the performance improvements each agency is trying to accomplish relative to its priorities using existing legislative authority, previously appropriated funds, and funding at levels proposed in the President's FY 2011 Budget. The HPPGs constitute the priority operational targets the agency will work to accomplish within 18 to 24 months of setting the targets. This distinguishes the HPPGs from the longer-term targets agencies include in their strategic plans, and the full set of performance goals and measures that agencies include in the annual plans and reports required by the Government Performance and Results Act (GPRA).

NIST and EDA share the following high priority performance goal and measures addressing Sustainable Manufacturing and Building Practices: 1) Raise the number of firms adopting sustainable manufacturing processes through the NIST Manufacturing Extension Partnership (MEP) by 250 by the end of 2011, and 2) Raise the percentage of construction projects

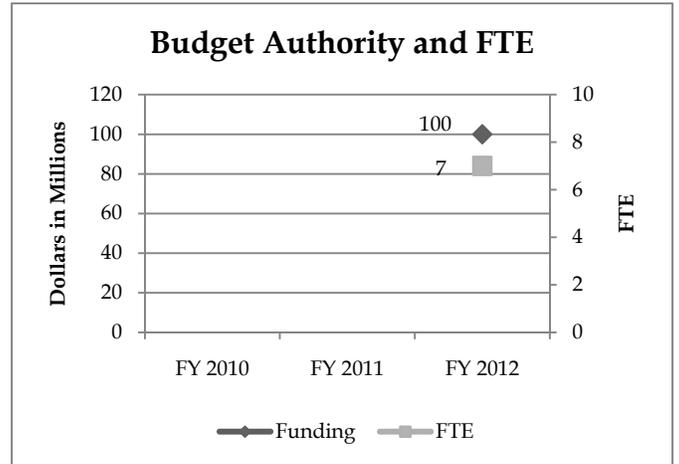
involving buildings or structures funded by Economic Development Assistance Programs that are certified by the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) or a comparable third-party certification program to 12 percent.

The first measure tracks the number of firms adopting economically and environmentally sustainable practices and products through the NIST Hollings MEP program. EDA is responsible for carrying out activities to achieve the second measure.

	FY 2008	FY 2009	FY 2010		FY 2011
NIST Measure	Actual	Actual	Target	Actual	Target
Raise the number of firms adopting sustainable manufacturing processes through the NIST Hollings Manufacturing Extension Partnership (MEP) by 250 by the end of 2011.		46	173	266	296

Public Safety Innovation Fund

The President's Wireless Innovation and Infrastructure Initiative proposes to reallocate a total of 500 megahertz of Federal agency and commercial spectrum bands over the next 10 years in order to increase Americans' access to wireless broadband. The auctions of reallocated spectrum licenses are expected to raise more than \$27 billion by 2021. This effort will enhance America's public safety, infrastructure, and competitiveness by investing some of the expected receipts in the creation of a broadband network for public safety, expanding access to wireless broadband in rural America, and a Wireless Innovation (WIN) Fund to help develop cutting-edge wireless technologies. As part of this initiative, NIST will participate in the WIN Fund by working with industry and public safety organizations to conduct research and develop standards, technologies and applications to advance public safety communications.



Summary of Appropriations

Funding Levels

Appropriation

MANDATORY ACCOUNT

Public Safety Innovation Fund

FTE

	2010 <u>Actual</u>	2011 CR <u>(Annualized)</u>	2012 <u>Estimate</u>	Increase <u>(Decrease)</u>
			\$100,000	\$100,000
			7	7

Highlights of Budget Changes

Appropriation: Public Safety Innovation Fund

Summary of Requirements

	Summary	
	<u>FTE</u>	<u>Amount</u>
2011 Mandatory Appropriation	0	0
Adjustments	0	0
2012 Base	0	0
Program Change	7	\$100,000
2012 Mandatory Appropriation	7	100,000

Comparison by Activity

	2011 Currently Avail.		2012 Base		2012 Estimate		Increase / Decrease	
	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>
DIRECT OBLIGATIONS	0	0	0	0	0	\$100,000	7	\$100,000
TOTAL OBLIGATIONS	0	0	0	0	0	100,000	7	100,000
FINANCING								
Unobligated balance, start of year	0	0	0	0	0	0	0	0
TOTAL MANDATORY BUDGET AUTHORITY	0	0	0	0	0	100,000	7	100,000

Highlights of Program Changes

	Base		Increase / Decrease	
	<u>FTE</u>	<u>Amount</u>	<u>FTE</u>	<u>Amount</u>
Public Safety Innovation Fund	0	\$0	+7	+\$100,000

The President's budget includes a request of \$100 million in mandatory appropriations for the Public Safety Innovation Fund, NIST's component of the Wireless Innovation Fund, which will help spur the development of cutting-edge wireless technologies. As part of this initiative, NIST will work with industry and public safety organizations to conduct research and develop standards, technologies and applications to advance public safety communications. Core components of this program will include documenting public safety requirements and driving the adoption of those requirements into the appropriate standards; developing the capability for communications between currently deployed public safety narrow band systems and the future nationwide broadband network; and establishing a roadmap that addresses public safety's needs beyond what can be provided by the current generation of broadband technology and driving technological progress in that direction. NIST will accomplish these goals through directed research, development, applications, and demonstration projects. Where appropriate, NIST will collaborate with other government research agencies and transfer funding if particular agencies are better suited to sponsor and oversee relevant research, development, or demonstration projects.