**U.S. HOUSE OF REPRESENTATIVES**
**COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY**
**SUBCOMMITTEE ON TECHNOLOGY**

# HEARING CHARTER

## *An Overview of the Fiscal Year 2014 Budget Proposal at the National Institute of Standards and Technology (NIST)*

**Thursday, April 18, 2013**
**10:00 a.m. - 12:00 p.m.**
**2318 Rayburn House Office Building**

## 1. Purpose

On Thursday, April 18, 2013, the Subcommittee on Technology will hold a hearing to examine the Administration's proposed fiscal year 2014 (FY14) budget request for the National Institute of Standards and Technology (NIST).

## 2. Witness

**Dr. Patrick Gallagher**, Under Secretary of Commerce for Standards and Technology and Director, National Institute of Standards and Technology

## 3. Hearing Overview

The National Institute of Standards and Technology (NIST) is a non-regulatory agency within the Department of Commerce. Originally founded in 1901 as the National Bureau of Standards, NIST's mission is to promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve our quality of life. By working closely alongside industry, NIST has become recognized as a provider of high-quality information utilized by the private sector.

NIST operates two main research laboratories in Gaithersburg, Maryland, and Boulder, Colorado, as well as radio stations in Hawaii and Colorado. NIST also maintains partnerships with the Hollings Marine Labs in Charleston, South Carolina, the Joint Institute for Laboratory Astrophysics (JILA) with the University of Colorado in Boulder, as well as the Center for Advanced Research in Biotechnology (CARB) and the Joint Quantum Institute with the University of Maryland.

NIST employs about 3,000 scientists, engineers, technicians, support, and administrative personnel. NIST also hosts an additional 2,700 associates and facility users from academia, industry, and other government agencies each year. NIST also partners with 1,300

manufacturing specialists and staff at about 400 Manufacturing Extension Partnership (MEP) service locations around the country.[1]

### *National Institute for Standards and Technology (NIST) Spending*

*(dollars in millions)*

| Account | FY12 Enacted | FY13 CR (Annualized) | FY13 CR (final*) | FY14 Request | FY14 Request vs. FY12 enacted | |
|---|---|---|---|---|---|---|
| | | | | | $ | % |
| **Scientific & Technical Research and Services (STRS)** | **567.0** | **570.5** | **577.9** | **693.7** | **126.7** | **22.3** |
| **Construction of Research Facilities (CRF)** | **55.4** | **55.7** | **55.8** | **60.0** | **4.6** | **8.3** |
| **Industrial Technology Services (ITS)** | **128.4** | **129.2** | **133.0** | **174.5** | **46.1** | **35.9** |
| *Manufacturing Extension Partnership (MEP)* | *128.4* | *129.2* | *119.5* | *153.1* | **24.7** | **19.2** |
| *Advanced Manufacturing Technology Consortia (AMTech)* | *0.0* | *0.0* | *13.5* | *21.4* | **21.4** | **100.0** |
| **Totals:** | **750.8** | **755.4** | **766.7** | **928.3** | **177.5** | **23.6** |

**estimate based on final FY13 CR, sequester, rescissions*

### *NIST Budget Summary*

The FY14 budget request for NIST is $928.3 million, an increase of $177 million or 23.6 percent from the FY12 enacted level. NIST received modified funding in the final FY13 continuing resolution, so when comparing the FY14 request with what NIST expects to actually spend in FY13, the year-over-year increase is 21 percent.

The budget for NIST is divided into three main accounts: Scientific and Technical Research and Services (STRS), Construction of Research Facilities (CRF), and Industrial Technology Services (ITS). The FY14 budget also requests an authorization of $1 billion in mandatory spending (as opposed to discretionary spending for other NIST accounts) for a National Network for Manufacturing Innovation (NNMI), first announced by President Obama one year ago.[2] However, the Committee did not receive either authorization legislation or detailed funding information for the new initiative from the Administration last year.

[1] http://www.nist.gov/public_affairs/general_information.cfm (Updated April 11, 2013).
[2] http://www.whitehouse.gov/the-press-office/2012/03/09/president-obama-announce-new-efforts-support-manufacturing-innovation-en

***Scientific and Technical Research and Services (STRS)***

The FY14 budget request would provide $694 million for NIST's Core Laboratory research programs in the Scientific and Technical Research and Services (STRS), an increase of $127 million over the FY12 enacted. The proposed increase for STRS focuses on the following initiatives: supporting Advanced Manufacturing activities ($50 million); cybersecurity research and standards ($15 million) and education ($1 million); developing measurement tools and standards for cyber physical systems ($10 million); advancing broadband communications ($10 million); creating a competitive grant program for Universities to establish four NIST Centers of Excellence ($20 million); addressing challenges within Forensic Science ($5 million); support for Health Information Technology testing and conformance ($3 million); disaster resilience ($5 million); and continued support for the National Strategy for Trusted Identities in Cyberspace (NSTIC) ($8 million).

***Construction of Research Facilities (CRF)***

The FY14 budget request for Construction of Research Facilities (CRF) is $60 million, an eight percent increase over the FY12 enacted level. CRF funding would support construction of new facilities and maintenance and repair of existing NIST buildings.

***Industrial Technology Services (ITS)***

In addition to the NIST laboratories, NIST manages several extramural programs supporting industry. The FY14 budget request for Industrial Technology Services (ITS) is $175 million, an increase of $46 million or 36 percent over the FY12 enacted level.

ITS funding includes $153 million for the Manufacturing Extension Partnership (MEP) program, and $21 million for the Advanced Manufacturing Technology (AMTech) Consortia Program.

The $153 million request for the Manufacturing Extension Partnership (MEP) program is a $25 million or 19 percent increase from the FY12 enacted level. The MEP program is a public/private partnership run by Centers in all 50 states and Puerto Rico that provides technical assistance for small- and medium-sized manufacturers to modernize their operations and adapt to foreign competition. MEP Centers are supported by equal contributions from federal funds, state funds, and industry client fees.

The proposed MEP increase would support a new initiative, the Manufacturing Technology Acceleration Centers (M-TAC) program, which would create teams of experts in specific technology/industrial sectors, offering specialized services to groups of small manufacturing firms with the goal of strengthening the supply chain for specific technologies. The requested funding increase would support 3-4 pilot M-TACs in FY14.

The FY14 budget request includes $21 million for the Advanced Manufacturing Technology Consortia (AMTech) Program, an increase of 45 percent over FY13 appropriated funding of $14.5 million. This program has not been authorized. Modeled after the Nanoelectronics Research Initiative (NRI), a partnership between NSF, NIST, industry, and universities across

the nation, the AMTech program will establish industry-led consortia to identify and prioritize research projects supporting long-term industrial research needs. The program will provide cost-shared funding to consortia that are focused on developing advanced technologies to address major technical problems that inhibit development and widespread adoption of advanced manufacturing capabilities in the United States.

The budget request also includes $20 million to establish four competitively selected Centers for Excellence in measurement science areas defined by NIST. Under this program, grants would be awarded to multi- or single university centers for five to seven years to provide an interdisciplinary environment where NIST, academic, and industry researchers can collaborate on basic and applied research focused on innovations in measurement science and new technology development. The FY13 CR also included $20 million for this program.

NIST currently operates six laboratory units which conduct research and development for measurement science, standards, and technology:

- **Material Measurement Laboratory (MML):** The MML serves as the national reference laboratory for measurements in the chemical, biological, and material sciences. The MML provides measurement services used by a broad set of industries including but not limited to: healthcare (biomarkers), renewable energy (measuring the quality of fuels) and forensic science (biometric identification techniques).
- **Physical Measurement Laboratory (PLM):** The PLM develops and disseminates the national standards of measurement, e.g., length, mass, force and shock, acceleration, time and frequency, electricity, temperature, humidity and pressure. This information supports consistent timekeeping, on which many technologies like GPS rely, and underpins the safety of our national electricity grid.
- **Engineering Laboratory (EL):** The EL develops and disseminates advanced manufacturing and construction technologies, guidelines, and services to the U.S. manufacturing and construction industries. Examples of EL work include researching ways to reduce the spread of fire in residential buildings and developing performance metrics for advanced manufacturing processes.
- **Information Technology Laboratory (ITL):** The ITL develops and disseminates standards, measurements, and testing for interoperability, security, usability, and reliability of information systems, including cyber security standards and guidelines for federal agencies and U.S. industry. ITL works in areas such as cloud computing, health information technology, and advanced voting technologies.
- **Center for Nanoscale Science and Technology (CNST):** The CNST is the only national nanotechnology center focused on commerce. The facility offers shared space – utilized by a variety of public and private stakeholders – for nanoscale fabrication and measurement, and develops innovative nanoscale measurement and fabrication capabilities.
- **Center for Neutron Research (NCNR):** The NCNR provides a national user facility, utilized by universities, government and industry, to study neutron-based measurement capabilities. The level of measurement capabilities is unavailable anywhere else in the country, allowing researchers to answer questions in nanoscience and technology with a broad range of applications.

***National Network for Manufacturing Innovation (NNMI)***

The FY14 budget request includes a proposal for $1 billion in mandatory funding to revitalize U.S. manufacturing through the establishment of a National Network for Manufacturing Innovation (NNMI). The NMMI anticipates collaboration between NIST, the Department of Defense, the Department of Energy, the National Science Foundation, the National Aeronautics and Space Administration, and other agencies to promote the development of manufacturing technologies with broad applications and to support manufacturing technology commercialization by bridging the gap between the laboratory and the market. Although the program has not been authorized, the Administration diverted funds from other programs to establish the National Additive Manufacturing Innovation Institute or NAMII in Youngstown, Ohio in August 2012. [3]

The NAMII is a pilot project separate from current NIST manufacturing programs, such as the Manufacturing Extension Partnership program and Advanced Manufacturing Technology Consortia. The Administration announced plans to launch three additional pilots (through DOD and DOE) in the 2013 State of the Union address, but has not provided any additional information on these pilots in the NIST budget.

[3] http://manufacturing.gov/nnmi_pilot_institute.html