

2. NNI INVESTMENTS

Budget Summary

The 2010 Budget provides \$1.6 billion for the National Nanotechnology Initiative (NNI), reflecting steady growth in the NNI investment. This sustained major investment in nanotechnology research and development (R&D) across the Federal Government over the past ten fiscal years of the NNI reflects the broad support of the Administration and of Congress for this program. This support is based on nanotechnology's potential to vastly improve our fundamental understanding and control of matter, ultimately leading to a revolution in technology and industry for the benefit of society. The NNI remains focused on fulfilling the Federal role of supporting basic research, infrastructure development, and technology transfer, in the expectation that the resulting advances and capabilities will make important contributions to national priorities, with applications across a wide range of industries, including healthcare, electronics, aeronautics, agriculture and food, and energy. The NNI also is committed to implementing its comprehensive strategy for environmental, health, and safety (EHS) research.⁴ Increasing investments by NNI participating agencies in nanotechnology-related research since 2001 reflect a recognition of the potential for this research to support agency missions and responsibilities. The cumulative NNI investment since 2001, including the 2010 request, now totals almost \$12 billion. Cumulative investments in EHS research since 2005 now total over \$350 million. Cumulative investments in education and in research on ethical, legal, and other societal dimensions of nanotechnology since 2005 total over \$220 million.

The 2010 NNI budget supports nanoscale science and engineering R&D at 13 agencies. Agencies with the largest investments are:

- NSF (fundamental research across all disciplines of science and engineering)
- DOD (science and engineering research advancing defense and dual-use capabilities)
- DOE (research providing a basis for new and improved energy technologies)
- NIH (nanotechnology-based biomedical research at the intersection of life sciences and the physical sciences)
- NIST (fundamental research and development of measurement and fabrication tools, analytical methodologies, and metrology for nanotechnology)

Other agencies investing in mission-related research are NASA, NIOSH, EPA, USDA (including both CSREES and FS), DHS, DOJ, and DOT (including the Federal Highway Administration, FHWA).

Table 2 shows NNI investments in 2008–2010 for Federal agencies with budgets and investments for nanotechnology R&D. Tables 3–6 list the investments by agency and by program component area (PCA). The program component areas shown in these tables are those outlined in the December 2007 NNI Strategic Plan,⁵ with nanotechnology-related EHS research reported in a separate PCA.

⁴ *Strategy for Nanotechnology-Related Environmental, Health, and Safety Research* (February 2008): http://www.nano.gov/NNI_EHS_Research_Strategy.pdf.

⁵ http://www.nano.gov/NNI_Strategic_Plan_2007.pdf, pp. 7–9.

2. NNI Investments

| Table 2 NNI Budget, 2008–2010 (dollars in millions) | | | | |
|---|--------------|---------------|----------------|---------------|
| | 2008 Actual | 2009 Estimate | 2009 Recovery* | 2010 Proposed |
| NSF | 409 | 397 | 108 | 423 |
| DOD** | 460 | 464 | | 379 |
| DOE*** | 245 | 337 | 25 | 351 |
| DHHS (NIH)**** | 305 | 311 | | 326 |
| DOC (NIST) | 86 | 87 | 7 | 91 |
| EPA | 12 | 16 | | 18 |
| NASA | 17 | 17 | | 17 |
| DHHS (NIOSH) | 7 | 7 | | 12 |
| DHS | 3 | 9 | | 12 |
| USDA (FS) | 5 | 5 | | 5 |
| USDA (CSREES) | 6 | 3 | | 3 |
| DOT (FHWA) | 1 | 3 | | 3 |
| DOJ | 0 | 0 | | 0 |
| TOTAL***** | 1,554 | 1,657 | 140 | 1,640 |

* Based on preliminary allocations of the American Recovery and Reinvestment Act of 2009 (P.L. 111-5) appropriations. These figures may change. Other NNI agencies with ARRA funding, but not listed in the table, are in the process of determining their allocations.

** In Tables 2–4, the 2008 and 2009 DOD figures include Congressionally directed funding that is outside the NNI plan (\$117 million for 2009).

*** Funding levels for DOE include the Office of Science and the Office of Energy Efficiency and Renewable Energy.

**** NIH recently unveiled the Research, Condition, and Disease Categorization (RCDC) system, a new knowledge management system designed to provide more consistent and transparent information to the public about NIH research. The shift to the RCDC process of categorization changes the way individual research projects are assigned to categories. This change will result in some differences in total dollar amounts between the 2008 reports and those issued in previous years. Any difference, whether an increase or decrease in funding levels, does not necessarily reflect a change in the amount of money the NIH received from Congress or a change in the actual content of the NIH research portfolio. For more information about the RCDC process and some of the factors that might contribute to the differences between the previously reported and new RCDC-generated funding levels, please go to:

http://report.nih.gov/rcdc/category_process/Default.aspx and <http://report.nih.gov/rcdc/reasons/default.aspx>.

***** For Tables 2–6, totals may not add, due to rounding.

Key points about the 2009 and 2010 NNI investments

- Beyond the estimated \$1.66 billion in total NNI investments reported under the respective 2009 agency appropriations, an additional \$140 million has been provided for nanotechnology research and infrastructure investments in 2009 through the American Recovery and Reinvestment Act (ARRA) of 2009. Note that ARRA investments shown in Table 5 are not included in Table 4. Additional 2009 nanotechnology-related investments may be reported later, as agencies evaluate the results of funding opportunity announcements issued under ARRA.
- Research on fundamental nanoscale phenomena and processes remains the largest program component area, growing from \$478 million in 2008 to \$507 million in 2010. With additional funds provided under ARRA, the enacted funding for this PCA in 2009 totals \$548 million. Much of the increase for 2009 and 2010 stems from increased investments at DOE's Office of Science for basic research on energy applications of nanoscience, and at NSF.