NATIONAL SCIENCE FOUNDATION

PART ASSESSMENTS[1]

[1]This document contains details of the most recent program assessments as of the date the 2005 Budget was published (February 2004). Programs originally assessed for the 2004 Budget were reassessed only where evidence showed an agency's rating was likely to change. Programs not reassessed are presented in this document in the form of reprints of the original worksheets and are footnoted "FY 2004 Budget".

TABLE OF CONTENTS

Program Assessment Rating Tool (PART)

Program: Facilities
Agency: National Science Foundation
Bureau:
Type(s): Research and Development Capital Assets and Service Acquisition Competitive Grant

Section Scores				Overall Rating
1	2	3	4	Effective
100%	100%	100%	90%	

1.1 Is the program purpose clear? Answer: YES Question Weight: 20%

Explanation: NSF's Facilities program reflects the parts of NSF's mission directed at programs to strengthen scientific and engineering research potential and to support the development and use of computers and other scientific methods and technologies. The NSF mission ("To promote the progress of science; to advance the national health, prosperity, and welfare; and to secure the national defense, and for other purposes.") is clear and unambiguous, and there is consensus of program purpose among interested parties.

Evidence: National Science Foundation Act of 1950 (http://www.nsf.gov/home/about/creation.htm); NSF Strategic Plan (http://www.nsf.gov/pubs/2001/nsf0104/start.htm)

1.2 Does the program address a specific and existing problem, interest or need? Answer: YES Question Weight: 20%

Explanation: NSF's Facilities program supports large, multiuser facilities, which allow researchers access to unique, state-of-the-art facilities that are necessary to advance U.S. capabilities required for world-class research. It also includes small facilities. This program addresses a critical need for tools to support basic research at universities and colleges.

Evidence: * Recent reports, such as that prepared by the National Science Board's (NSB) Taskforce on Science and Engineering Infrastructure (http://www.nsf.gov/nsb/documents/2003/start.htm), as well as Committee of Visitor (COV) * * reports and community workshops support NSF's role in capacity building.(* *COVs assess approximately one-third of NSF programs each year, and review performance over the previous three years. See the FY 2002 Performance and Accountability Report for a Schedule of Program Evaluations.) * GEO Advisory Committee endorsement of the GEO Facilities Plan is an example of this support (http://www.geo.nsf.gov/geo/adgeo/fac_lrp/facilities_plan.pdf). * NAS Study: Neutrinos and Beyond, New Windows on Nature

1.3 Is the program designed so that it is not redundant or duplicative of any other Federal, state, local or private effort? Answer: YES Question Weight: 20%

Explanation: NSF supports unique facilities to enable research and education activities across the span of disciplines for which the Foundation has responsibility. In contrast, other federal agencies support research focused on specific missions. NSF has a responsibility to consider what large facilities are needed to maintain the nation's leadership in science and engineering. NSF consults with other agencies to avoid duplication and cooperates with other agencies and with international partners in constructing facilities.

Evidence: * The September 2001 report of the National Committee on Organization and Management of Research in Astronomy and Astrophysics recommended that "the National Science Foundation's astronomy and astrophysics responsibilities should not be transferred to NASA." The rationale for this recommendation was based on a thorough analysis of NSF activities in ground-based astronomy and the conclusion that NSF is the appropriate agency to sponsor ground-based astronomy and astrophysics (http://books.nap.edu/books/0309076269/html/3.html#pagetop). * NSF serves as the lead agency for the NITRD initiative, provides interagency leadership for the National Nanotechnology Initiative (http://www.nano.gov) and coordinates with the National Science and Technology Council in other areas. *NSF provides a majority of support for ground based astronomy, the Academic Research Fleet, and the majority of support for facilities at universities, colleges and other non-profit organizations. * Proposals to this and other NSF programs must identify other agency funding/requests to ensure no unnecessary duplication.

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1.4 Is the program design free of major flaws that would limit the program's effectiveness or efficiency? Answer: YES Question Weight: 20%

Explanation: NSF relies on the competitive merit review process, the NSF Program Officers in their oversight capacity, and Committees of Visitors (COVs) to ensure that facilities are effectively serving their intended communities, and to recommend changes to improve program effectiveness and efficiency. These measures ensure that supporting the acquisition and operation of infrastructure is the most efficient method of facilitating the science in question. Many facilities have "user groups" that communicate regularly with NSF and facilities managers. Merit review by peers has been recognized as a "best practice" for administering R&D programs. Independent reviews by COVs and external groups (e.g., National Research council, PCAST) provide additional scrutiny of the portfolio and program goals.

Evidence: * FY 2002 Report on the NSF Merit Review Process (http://www.nsf.gov/nsb/documents/2003/merit_report 2002 final.doc) * FY 2002 Performance and Accountability Report(http://www.nsf.gov/pubs/2003/nsf03023/pdf/chapter4.pdf) * COV Reports * R&D Investment Criteria

1.5 Is the program effectively targeted, so that resources will reach intended beneficiaries and/or otherwise address the program's purpose directly? Answer: YES Question Weight: 20%

Explanation: NSF supports unique facilities to enable research and education activities across the span of disciplines for which the Foundation has responsibility. The peer review process for access to specific facility resources and/or time ensures effective targeting of funding so that results of investments will reach the intended beneficiaries. Committees of Visitors ensure relevance to community needs. In most cases, the National Science Board reviews facility awards to ensure that they are appropriately supportive of NSF's mission.

Evidence: * COV Reports * NAS Study: Neutrinos and Beyond, New Windows on Nature * NRC 2001 Report: Astronomy and Astrophysics in the New Millennium. * Workshop Reports * NSB Report: Science and Engineering Infrastructure for the 21st Century: the Role of NSF * NAS Decadal Review of Astronomy: Astronomy and Astrophysics in the New Millennium (2001)

2.1 Does the program have a limited number of specific long-term performance measures that focus on outcomes and meaningfully reflect the purpose of the program? Answer: YES Question Weight: 9%

Explanation: The Facilities Program is a subset of the Tools Strategic Goal -- providing "broadly accessible, state-of-the-art and shared research and education tools." This reflects the parts of NSF's mission directed at programs to strengthen scientific and engineering research potential, and to support the development and use of computers and other scientific methods and technologies.

Evidence: * NSF Revised Strategic Plan (http://www.nsf.gov/pubsys/ods/getpub.cfm?nsf0104) * NSF annual GPRA Performance Plans (http://www.nsf.gov/od/gpra). * A limited number of Tools performance indicators pertain directly to facilities.

2.2 Does the program have ambitious targets and timeframes for its long-term measures? Answer: YES Question Weight: 9%

Explanation: Facilities that enable discoveries or enhance productivity of NSF research or education communities: The target of "significant achievement" requires external assessment of facility outcomes based on knowledge of science achievement on a world-wide stage. Partnerships to support and enable development of large facilities: Partnerships require major negotiations with international partners in times of economic uncertainty and must represent "significant achievement" in the view of external assessors.

Evidence: * Advisory Committee for GPRA Performance Assessment (ACGPA) Reports * FY 2004 Budget Request to Congress, Chapters on Tools and the MREFC Account. * FY 2002 Performance and Accountability Report

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2.3 Does the program have a limited number of specific annual performance measures that can demonstrate progress toward achieving the program's long-term goals? Answer: YES Question Weight: 9%

Explanation: Each year, performance indicators that demonstrate progress toward achieving the long-term Facilities goal are delineated in the annual GPRA performance plan. There is also an annual cost and schedule goal for construction and upgrade of facilities and an annual goal related to facility operations.

Evidence: * In FY 2002, committees of external experts determined that NSF had demonstrated significant achievement for all of the annual performance indicators for the TOOLS goal, which includes facilities. * NSF was successful in achieving two of the four goals related to the construction/upgrade and operations of facilities projects. See the NSF FY 2002 Performance and Accountability Report (http://www.nsf.gov/pubs/2003/nsf03023/start.htm) for additional details.

2.4 Does the program have baselines and ambitious targets for its annual measures? Answer: YES Question Weight: 9%

Explanation: Baselines have been established for annual performance measures, and targets for facility performance are reviewed annually. Performance targets are ambitious but commensurate with the budget environment. In addition to program measures, individual projects also set performance targets.

Evidence: * NSF GPRA Performance Reports * FY 2002 Performance and Accountability Report * FY 2004 Budget Request to Congress, Chapters on Tools and the MREFC Account * FY 2004 GPRA Performance Plan

2.5 Do all partners (including grantees, sub-grantees, contractors, cost-sharing partners, and other government partners) commit to and work toward the annual and/or long-term goals of the program? Answer: YES Question Weight: 5%

Explanation: All partners commit to and work toward the goals of the program. Purpose, responsibilities, and requirements for all partners are spelled out in Cooperative agreements for facilities. These Cooperative agreements specifically require annual reports on progress relative to the project's construction/upgrade or operations goals, as relevant. Memoranda of Understanding (MOUs) and Memoranda of Agreement (MOAs) exist between NSF and partnering organizations.

Evidence: * Annual / Final Project Reports. * GPRA Reporting Requirements in Cooperative Agreements for Facility Awards.

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2.6 Are independent evaluations of sufficient scope and quality conducted on a regular basis or as needed to support program improvements and evaluate effectiveness and relevance to the problem, interest, or need?

Answer: YES Question Weight: 18%

Explanation: Evaluations are conducted regularly at multiple levels in order to inform program improvements and influence program planning. Each program at NSF is reviewed once every three years by a COV. Advisory Committees review and approve COV reports. As of FY 2002 the Advisory Committee for GPRA Performance Assessment makes use of COV reports in its assessment of performance for each Tools indicator applicable to facilities on an NSF-wide basis. NSF conducts workshops and various facilities have been reviewed by external entities such as the NAS. NSF staff and external experts conduct site visits at NSF-supported facilites. All these activities inform NSF senior management and contribute to development of plans for the agency. (The weight of this question has been increased to reflect the importance NSF places on the conduct of independent evaluations to support program improvements and evaluate effectiveness.)

Evidence: * COV reports and NSF responses. * AC reports, including the Advisory Committee for GPRA Assessment (AC/GPA) report (Fall 2002). * External reviews. * Community workshops. * Annual site visits that include external reviewers for facilities.

2.7 Are Budget requests explicitly tied to accomplishment of the annual and long-term performance goals, and are the resource needs presented in a complete and transparent manner in the program's budget?

Answer: YES Question Weight: 5%

Explanation: Performance information is incorporated into NSF's budget requests. The FY 2004 justification was built around the R&D Criteria, thus highlighting specific performance information for NSF's investment portfolio. Continued funding for facilities is contingent on satisfactory progress and performance with respect to previously established metrics. The budget also clearly presents the resource request for each program and outlines activities supported with the funds. The FY 2004 Request provided full budgetary costing by the program framework in use at that time (Strategic Goals and Directorates). In FY 2005, NSF will display full budgetary cost associated with the new program framework defined in the Revised GPRA Strategic Plan. Facilities submit annual progress reports, and Program Officers conduct site visits with external experts. In contrast to the 2004 PART assessment for TOOLS, in which linkages were not all well defined, direct linkages exist for the Facilities program -- i.e., the MREFC Account and other major facilities.

Evidence: * Detailed plans for MREFC projects and other major facilities are included in the FY 2004 Budget Request to Congress (http://www.nsf.gov/bfa/bud/fy2004/toc/htm). * Budget submissions to OMB at multiple levels outline performance changes. * NSF's Budget Request to Congress contains milestones for MREFC projects. * Full budgetary costing for MREFC and for Tools is included in the FY 2004 Budget Request to Congress. * Capital Asset Plans. * Site Visit reports * Annual Reports

2.8 Has the program taken meaningful steps to correct its strategic planning deficiencies?

Answer: YES Question Weight: 9%

Explanation: NSF solicits public feedback on the agency's goals and planning processes as part of each independent (external) assessment of agency activities. Steps to address specific weaknesses are identified and implemented.

Evidence: * COVs address deficiencies and the program must respond. These reports and responses are reviewed by Advisory Committees for acceptability. * AC reports. * Selection of the Deputy Director, Large Facility Projects. He will coordinate NSF management and oversight activities for all facilities. * FY 2002 Performance and Accountability Report * Inspector General Reports and NSF Responses

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2.CA1 **Has the agency/program conducted a recent, meaningful, credible analysis of alternatives that includes trade-offs between cost, schedule, risk, and performance goals and used the results to guide the resulting activity?** Answer: YES Question Weight: 9%

Explanation: Cost/benefit analysis and risk management are aspects of the planning and decision-making processes when facility investments are considered. Alternative approaches, including cost and risk and utility for research, are considered in advance of project initiation. Research and development is conducted to support these choices and the decision-making process. Design studies examine tradeoffs between different concepts, such as selection of alternate sites (e.g., ALMA) and technical design (e.g., Gemini).

Evidence: Considerations of alternatives are apparent in: * Facility-specific benefit and risk analysis * Requirements from Large Facility Projects guidelines * Committee on the Organization and Management of Research in Astronomy and Astrophysics (COMRAA) Report * R&D prototyping * Site selection process for facilities * FY 2004 Budget Request to Congress * Examples of specific projects for which alternative approaches were considered: * Atacama Large Millimeter Array (ALMA) * Laser Interferometer Gravitational Wave Observatory (LIGO) * Gemini

2.RD1 **If applicable, does the program assess and compare the potential benefits of efforts within the program to other efforts that have similar goals?** Answer: YES Question Weight: 9%

Explanation: Prior to initiating support for new activities, workshops and external reviews are typically conducted to ensure that scientific opportunities justify the facility expenditure, and that supporting the acquisition and operation of infrastructure is the most efficient method of facilitating the science in question. NSF senior management reviews and compares opportunities of competing projects and selects from them, forwarding them for subsequent review and approval to the NSB. Interagency and international agreements and understandings are active and on file for most facilities projects, demonstrating the commitment of NSF to non-duplication and efficient and effective coordination of efforts.

Evidence: * NAS Studies * Workshops * COVs * Merit Review Process * MOUs and MOAs * Advisory Committee Reports * Example of interagency coordination -- High Energy Physics Advisory Panel (HEPAP) between NSF and DOE.

2.RD2 **Does the program use a prioritization process to guide budget requests and funding decisions?** Answer: YES Question Weight: 9%

Explanation: NSF investments in Major Research Equipment and Facilities Construction have a documented prioritization process. For example, the MREFC Guidelines have been updated over the past year, and the Guidelines will continue to be a living document. Priorities for MREFC were explicitly provided in the FY 2004 Budget Request, as was a discussion of the process. Other facility investments are prioritized utilizing workshops, community-based planning efforts, and with advice from established Advisory Committees. In addition, external groups such as the National Academies provide prioritized recommendations.

Evidence: * Examples of documentation include: MREFC chapter in FY 2004 Budget Request MREFC Prioritizing Guidelines Community Planning Documents GEO Facilities Plan NAS Studies AC Reports High Energy Physics Advisory Panel reports NAS Decadal Review of Astronomy: Astronomy and Astrophysics in the New Millennium (2001)

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3.1 Does the agency regularly collect timely and credible performance information, including information from key program partners, and use it to manage the program and improve performance?

Answer: YES Question Weight: 8%

Explanation: NSF programs collect high-quality performance data relating to key program goals and use this information to adjust program priorities, make decisions on resource allocations and make other adjustments in management actions. NSF facilities are unique and information gathering can vary by facility. All facilities provide annual or more frequent progress reports on operations. NSF also has external annual reviews for programs that involve interagency and/or international partners. Program Officers monitor and collect information through weekly to monthly scheduled meetings with facilities managers and appropriate financial, managerial, and scientific staff. This oversight provides current and timely performance information that is meaningful to NSF program management. In agency construction programs, collection of performance data and monitoring can occur as frequently as daily. NSF collection is accomplished through formal channels of communication with interagency and/or international partners through weekly, quarterly, semiannual or annual reviews. External reviews are provided at least annually.

Evidence: * Examples of COV reports: FY 2002: Ship Operations; Astronomy facilities; Materials Research facilities. FY 2003: NCAR; Physics facilities. * AC reports, including the AC/GPA report. * GPRA Facilities Reports. * Annual Project Reports. * Enterprise Information System (EIS) data -- GPRA module. * Annual contract performance evaluations. * Site visit reports.

3.2 Are Federal managers and program partners (including grantees, sub-grantees, contractors, cost-sharing partners, and other government partners) held accountable for cost, schedule and performance results?

Answer: YES Question Weight: 8%

Explanation: Facilities are subject to GPRA performance reporting requirements. NSF's contracts and Cooperative Agreements specify expected cost, schedule and performance results. These agreements can be (and have been) terminated in cases where the awardee is unable to meet the terms of the award instrument. NSF Program Officers monitor cost, schedule and technical performance and take corrective action when necessary. NSF has established policies and procedures that require program managers to report to senior management all deviations on cost and schedule. Deviations on cost that are greater than 10% must also be reported to the National Science Board.

Evidence: * Cooperative agreements or contracts for Facilities. * Annual performance evaluations of NSF employees * COV reports * Annual and final reports * GPRA Facilities Performance Reports * A number of facilities have been terminated or phased out based on performance

3.3 Are funds (Federal and partners') obligated in a timely manner and spent for the intended purpose?

Answer: YES Question Weight: 8%

Explanation: NSF, including the facilities program, routinely obligates its funds in a timely manner. A study conducted by PricewaterhouseCoopers found no erroneous payments. NSF's grant monitoring activities assure that the funds are used for their intended purpose.

Evidence: * NSF FY 2001 Risk Assessment for Erroneous Payments * Data on NSF Carryover, found in the NSF's Budget Requests to Congress * Risk Assessment and Award Monitoring Guide * Clean opinion on financial statements for past 5 years

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3.4 Does the program have procedures (e.g. competitive sourcing/cost comparisons, IT improvements, appropriate incentives) to measure and achieve efficiencies and cost effectiveness in program execution? Answer: YES Question Weight: 8%

Explanation: In most cases, NSF's facilities are unique or one-of-a-kind and not available commercially, hence direct comparisons are not generally possible. In instances where facility capability may be commercially available, cost comparisons, including lease/purchase analysis per OMB A-94, are conducted to determine the most efficient and effective method of providing the required capability. As a result, NSF employs a number of acquisition strategies, including direct purchase/construction, lease, and fixed-duration contract in providing facility services.Cost efficiencies example: Daily operations costs for the Academic Research Fleet have been analyzed and compared to similar Navy and NOAA ships. NSF costs were found to be comparable.

Evidence: * FY 2002 Performance and Accountability Report * COV reports * The Academic Research Fleet report (http://www.geo.nsf.gov/oce/pubs/fleetrev.html)

3.5 Does the program collaborate and coordinate effectively with related programs? Answer: YES Question Weight: 8%

Explanation: Facility construction projects and operations are coordinated with other federal programs as well as with international partners. For example, the Large Hadron Collider (LHC) is an example of a collaborative international partnership. LHC is an example of a collaborative international partnership. LHC is an international project under construction at the CERN laboratory in Geneva, Switzerland. The U.S. is involved in the construction of 2 particle detectors, a Toroidal LHC Apparatus (ATLAS) and the Compact Muon Solenoid (CMS). A total of 34 international funding agencies participate in the ATLAS detector project, and 31 in the CMS detector project. NSF and DOE are providing U.S. support. CERN is responsible for meeting the goals of the international LHC project.

Evidence: * Examples of facilities with other federal and international partners include: Large Hadron Collider Ocean Drilling Program (ODP/IODP) Atacama Large Millimeter Array (ALMA) High Performance Instrumented Airborne Platform for Environmental Research (HIAPER) * Mathematical and Physical Sciences coordinated activities

3.6 Does the program use strong financial management practices? Answer: YES Question Weight: 8%

Explanation: NSF's facilities program uses strong financial management practices. NSF is currently the only federal agency to receive a "green light" for financial management on the PMA scorecard. NSF has received a clean opinion on its financial audits for the last 5 years.

Evidence: * Executive Branch Management Scorecard (website) * Results of NSF financial audits (website)

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3.7 Has the program taken meaningful steps to address its management deficiencies? Answer: YES Question Weight: 8%

Explanation: NSF has taken several steps to address identified deficiencies in management and oversight. In response to the OIG FY 2002 Management Challenges, NSF has begun updating its policies and procedures to strengthen the management and oversight of large facility projects. NSF's improvements to facilities management and oversight have included: * Developing a Large Facility Projects Management and Oversight Plan, and has sought OIG input as it developed this plan. This plan provides comprehensive guidelines and procedures for all aspects of facilities planning, managing and oversight; * Appointing a Deputy Director for Large Facility Projects; * Revising goals for facilities that use earned management practices to evaluate performance and redesigning the data collection module in FastLane to incorporate these changes; and * Providing continuing long-term senior executive attention to NSF's management challenges and reforms through the Management Controls Committee. The Committee is chaired by the NSF Chief Financial Officer.In NSF's FY 2002 Performance and Accountability Report, the OIG confirms that NSF has taken important first steps toward addressing its facilities-management challenges.

Evidence: * Selection of Deputy Director, Large Facility Projects. He will coordinate NSF management and oversight activities for facilities. * Large Facility Projects Management and Oversight Plan (September 2001) * NSF FY 2002 Performance and Accountability Report. * The NSF Academy provides management coursework. * Booz Allen Hamilton contract for a multi-year business analysis. * COVs address deficiencies and the program must respond. These reports and responses are reviewed by Advisory Committees for acceptability. * Revised goals for facilities that use earned management practices to evaluate performance. Data collection module in FastLane incorporates these changes.

3.CA1 Is the program managed by maintaining clearly defined deliverables, capability/performance characteristics, and appropriate, credible cost and schedule goals? Answer: YES Question Weight: 8%

Explanation: Construction projects are managed using annual cost and schedule goals as well as through "earned value". Facilities which have transitioned to an operations mode have annually defined deliverables.

Evidence: * Large Facility Project Guidelines; * GPRA performance goals * Annual / Final Project Reports

3.CO1 Are grants awarded based on a clear competitive process that includes a qualified assessment of merit? Answer: YES Question Weight: 20%

Explanation: NSF facilities support is allocated using a competitive process which uses merit review. Although many facility operation grants are renewed, the continuation of support is based on a merit reviewed proposal. As a result of NSB guidance to periodically recompete facility grants, NSF considers whether an expiring grant should be recompeted, and the default is to do so barring extenuating circumstances. (The weight of this question has been increased to reflect the importance of external merit review in validating the quality of this basic research program.)

Evidence: * NSB Policy on Recompetition * FY 2002 Report on the NSF Merit Review System * NSF Performance and Accountability Reports * Enterprise Information System (EIS)

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3.CO2 **Does the program have oversight practices that provide sufficient knowledge of grantee activities?** Answer: YES Question Weight: 8%

Explanation: See Item 3.1 for current oversight mechanisms. Oversight mechanisms are currently sufficient, but projects are beginning to exceed our capacity to provide adequate oversight. This was raised as a management challenge in FY 2002, and NSF is addressing the increased oversight requirements in A&M budget plans. NSF is using technology, such as teleconferencing and videoconferencing to enhance performance oversight within current resource constraints. In FY 2002 NSF established a formal Award Monitoring and Technical Assistance Program (AM&TAP) based on financial and administrative risk assessment of NSF awardee institutions and with a primary focus to on-site monitoring. Consistent with NSF's existing award administration process, AM&TAP is a collaborative effort between administrative and financial managers/technical staff and NSF program managers.

Evidence: * COV reports * Quarterly / Annual and Final Project Reports. * Directorate Reviews * MREFC Panel Review * FY 2002 Report on the NSF Merit Review System * NSB Review * Consultants and external review committees * Annual reviews * Risk Assessment and Award Monitoring Guide * Facilities Management and Oversight Guide

3.CO3 **Does the program collect grantee performance data on an annual basis and make it available to the public in a transparent and meaningful manner?** Answer: YES Question Weight: 8%

Explanation: Annual performance data on facilities construction and operations are available through past GPRA Performance Reports and the combined Performance and Accountability Report. These reports are publicly available.

Evidence: * GPRA Performance Reports * Performance and Accountability Report * FY 2004 Budget Request

3.RD1 **For R&D programs other than competitive grants programs, does the program allocate funds and use management processes that maintain program quality?** Answer: NA Question Weight: 0%

Explanation: All NSF programs are administered as competitive grant programs

Evidence:

4.1 **Has the program demonstrated adequate progress in achieving its long-term performance goals?** Answer: YES Question Weight: 15%

Explanation: NSF achieved its FY 2002 GPRA goal for TOOLS -- Providing "broadly accessible, state-of-the-art and shared research and education tools.'

Evidence: * FY 2002 Performance and Accountability Report. * AC/GPA

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4.2 Does the program (including program partners) achieve its annual performance goals? Answer: LARGE EXTENT Question Weight: 15%

Explanation: NSF achieved 2 of the 4 GPRA goals for Facilities Construction and Operations in FY 2002. Goals achieved: (1) Annual Construction and Upgrade Expenditures: Of the 28 construction and upgrade projects supported by NSF in FY 2002, 26 (93%) were within 110% of annual expenditure plans. (2) Construction and Upgrade Total Cost (for projects initiated after 1996): Two projects were completed in FY 2002, one of which had been initiated prior to 1996.Goals not achieved: (1) Meeting Annual Schedule Milestones: Of the 27 construction and upgrade projects NSF supported, 13 (48%) met all annual schedule milestones compared to the goal of 90%. (2) Operating Time: Of 31 reporting facilities, 26 (84%) met the goal of keeping unscheduled downtime to below 10% of the total scheduled operating time compared to the goal of 90%.In FY 2003, NSF will combine cost and schedule performance into a single goal. The revised goals are calculated using the Earned Value technique, a project management tool for measuring progress that recognizes that cost or schedule data alone can lead to distorted perceptions of performance.

Evidence: * FY 2002 Performance and Accountability Report.

4.3 Does the program demonstrate improved efficiencies or cost effectiveness in achieving program goals each year? Answer: YES Question Weight: 15%

Explanation: Facilities are improving efficiencies through development of instrumentation making use of state-of-the-art technology to provide greater data gathering capabilities, including more efficient use of equipment and improved transmission rates (e.g., Gemini telescope). Upgrades to facilities provide improved technologies and enable more efficient operations. For example, scheduling of telescopes to carry out long term observations is accomplished using Q-scheduling, a scheduling technique that significantly enhances efficiency of use of telescopes.

Evidence: Specific examples of efficiencies: * Instrumentation at National Observatories takes data at rates hundreds of times faster than in the past. * Development of high-speed internet connections to Hawaii and South America for transmission of data to users. * Remote access to facilities enables increased cost efficiencies and easier access to results.

4.4 Does the performance of this program compare favorably to other programs, including government, private, etc., with similar purpose and goals? Answer: YES Question Weight: 15%

Explanation: NSF uses competitive merit review to allocate the vast majority of its basic and applied research funds. NSF-supported construction and upgrade projects are routinely within estimated costs. COVs and ACs assess program performance in light of their knowledge of programs throughout the government.

Evidence: * NSF FY 2002 Performance and Accountability Report * COV reports * AC reports.

4.5 Do independent evaluations of sufficient scope and quality indicate that the program is effective and achieving results? Answer: YES Question Weight: 25%

Explanation: Independent assessments of components of the TOOLS program find that the program is effective. External experts noted that NSF demonstrated significant achievement for the FY 2002 performance indicators associated with the TOOLS strategic outcome. (The weight of this question has been increased to reflect the importance of independent evaluations in assessing effectiveness of basic research programs.)

Evidence: * COV reports and NSF responses. * AC Reports. * FY 2002 Performance Report. * External Reports (e.g. NAS Reports).

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4.CA1 **Were program goals achieved within budgeted costs and established schedules?**

Answer: LARGE EXTENT Question Weight: 15%

Explanation: NSF achieved 2 of the 3 GPRA goals for Facilities Construction. Goals achieved: (1) Annual Construction and Upgrade Expenditures: Of the 28 construction and upgrade projects supported by NSF in FY 2002, 26 (93%) were within 110% of annual expenditure plans. (2) Construction and Upgrade Total Cost (for projects initiated after 1996): Two projects were completed in FY 2002, one of which had been initiated prior to 1996.Goal not achieved: (1) Meeting Annual Schedule Milestones: Of the 27 construction and upgrade projects NSF supported, 13 (48%) met all annual schedule milestones compared to the goal of 90%.In FY 2003, NSF will combine cost and schedule performance into a single goal. The revised goals are calculated using the Earned Value technique, a project management tool for measuring progress that recognizes that cost or schedule data alone can lead to distorted perceptions of performance.

Evidence: * FY 2002 Performance and Accountability Report.

PART Performance Measurements

Program: Facilities

Agency: National Science Foundation

Bureau:

Measure: Percent of construction acquisition and upgrade projects with negative cost and schedule variances of less that 10% of the approved project plan.

Additional Information: Investments in development, construction of state-of-the-art facilities and platforms are implemented consistently with planned cost and schedule. Through FY 2002, there were three interrelated but separate GPRA goals for schedule and cost for construction/upgrade projects. For FY 2003 and beyond, these goals were combined (with OMB approval) into the single goal. While annual and total cost targets were all met in FY 2001 and FY 2002, scheduling milestones were not. The targets and actual performance shown (*) for FY 2001 and FY 2002 reflect the schedule goal only.

Year	Target	Actual
2001	90%	84%
2002	90%	48%
2003	90%	88%
2004	90%	

Measure Term: Annual (Efficiency Measure)

Measure: Percent of operational facilities that keep scheduled operating time lost to less than 10%

Additional Information: Investments in the operation of state-of-the-art facilities and platforms. Measure in FY 01 and 02 was based on keeping operating time greater than 90%; results reported here are in terms of present measure.

Year	Target	Actual
2002	90%	84%
2003	90%	87%
2004	90%	

Measure Term: Annual (Efficiency Measure)

Measure: External advisory committee (AC/GPA) finding of "significant achievement" that facilities enable discoveries or enhance productivity of NSF research or education communities.

Additional Information: Leadership in the development, construction, and operation of major, next-generation facilities.

Year	Target	Actual
2001	Success	Success
2002	Success	Success
2003	Success	Success

Measure Term: Long-term

PART Performance Measurements

Program: Facilities

Agency: National Science Foundation

Bureau:

Measure: External advisory committee (AC/GPA) finding of "significant achievement" that facilities enable discoveries or enhance productivity of NSF research or education communities.

Additional Information: Leadership in the development, construction, and operation of major, next-generation facilities.

Year	Target	Actual	**Measure Term:** Long-term
2006	Success		

Measure: External advisory committee (AC/GPA) finding of "significant achievement" that NSFhas partnerships to support and enable development of large facilities.

Additional Information: Expand opportunities for access to state-of-the-art S&E facilities

Year	Target	Actual	**Measure Term:** Long-term
2001	Success	Success	
2002	Success	Success	
2003	Success	Success	
2006	Success		

Program Assessment Rating Tool (PART)

Program: Individuals
Agency: National Science Foundation
Bureau:
Type(s): Research and Development Competitive Grant

Section Scores				Overall Rating
1	2	3	4	Effective
100%	91%	100%	83%	

1.1 Is the program purpose clear? Answer: YES Question Weight: 20%

Explanation: The purpose of NSF's investments in individuals is to "ensure development of world-class scientists, mathematicians, technologists and educators" (NSF Revised GPRA Strategic Plan). This statement of purpose is derived directly from the statutes that govern the Foundation. The NSF Act of 1950 authorizes NSF to support science and engineering education at all levels, including providing graduate fellowships in science and engineering. Other statutes, notably the Science and Engineering Equal Opportunities Act, have expanded this authority to address the underrepresentation of women, minorities, and persons with disabilities in science and engineering. These purposes have since been further expanded and clarified in recently-enacted NSF Authorization Act of 2002.

Evidence: NSF Revised GPRA Strategic Plan; National Science Foundation Act of 1950, 42 USC 1861 et. Seq.; Science and Engineering Equal Opportunities Act, 42 USC 1885; NSF Authorization Act of 2002, P.L. 107-378

1.2 Does the program address a specific and existing problem, interest or need? Answer: YES Question Weight: 20%

Explanation: The national imperative for NSF's investments in Individuals is addressed in Paragraph 4 of Section 2, (Findings) of the NSF Authorization Act of 2002: "The research and education activities of the National Science Foundation...prepare future generations of scientists, mathematicians, and engineers who will be necessary to ensure America's leadership in the global marketplace."

Evidence: NSF Authorization Act of 2002, P.L. 107-378

1.3 Is the program designed so that it is not redundant or duplicative of any other Federal, state, local or private effort? Answer: YES Question Weight: 20%

Explanation: NSF is the only Federal agency charged with promoting the progress of science and engineering research and education in all fields and disciplines. As such NSF's activities through its investments in Individuals address unique national science, technology, engineering, and mathematics (STEM) workforce needs that are not under the purview of mission-oriented federal, state or local agencies.

Evidence: NSF has specific, statutory authority to evaluate the status and needs of the various sciences and engineering and to consider the results of this evaluation in correlating its research and educational programs with other Federal and non-Federal programs. (http://www.nsf.gov/home/about/creation.htm)

1.4 Is the program design free of major flaws that would limit the program's effectiveness or efficiency? Answer: YES Question Weight: 20%

Explanation: NSF's investments in Individuals rely upon the competitive merit review process, NSF Program Officers, and Committees of Visitors to ensure program effectiveness and efficiency. Merit review by peers has been recognized as a best practice for administering R&D programs. Independent reviews by COVs and other external groups (e.g., Advisory Committees, National Science Board, NAS/NRC, PCAST) provide additional scrutiny of the portfolio and program goals. This follows the guidance provided in the R&D Criteria, as outlined in the OMB/OSTP Guidance Memo.

Evidence: FY 2002 Performance Report (http://www.nsf.gov/pubs/2003/nsf03023/pdf/chapter4.pdf); Report to the NSB on the NSF Merit Review Process ' FY 2002 (http://www.nsf.gov/nsb/documents/2003/merit_rprt/mrreport_2002_final.doc); June 2003 OMB/OSTP Guidance Memo (http://www.ostp.gov/html/OSTP-OMB%20Memo.pdf).

Program Assessment Rating Tool (PART)

Program: Individuals
Agency: National Science Foundation
Bureau:
Type(s): Research and Development Competitive Grant

Section Scores				Overall Rating
1	2	3	4	Effective
100%	91%	100%	83%	

1.5 Is the program effectively targeted, so that resources will reach intended beneficiaries and/or otherwise address the program's purpose directly? Answer: YES Question Weight: 20%

Explanation: NSF's investments in Individuals rely upon two mechanisms to ensure that the program is effectively targeted and that funding addresses the programs purpose directly. First, the program solicitations for each activity contain a clear statement of the program's purpose in the context of the particular activity. Then, the merit review process ensures that funding is awarded to proposals that best address the programs purpose.

Evidence: Information on program solicitations (including URLs) for investments in Individuals is included in the Account Information tab. Key excerpts include:-NSF's most prestigious awards for new faculty members (CAREER) recognizes and provides direct support for the early career-development activities of those teacher-scholars who are most likely to become the academic leaders of the 21st century.-Graduate Research Fellowships provide three years of support for graduate study leading to research-based master's or doctoral degrees in STEM fields and are intended for students in the early stages of their graduate study.-IGERT meets the challenges of educating U.S. Ph.D. scientists, engineers, and educators with the interdisciplinary backgrounds, deep knowledge in chosen disciplines, and technical, professional, and personal skills to become in their own careers the leaders and creative agents for change.-The NSF Director's Award for Distinguished Teaching Scholars (DTS) recognizes and rewards individuals with distinguished records of educating undergraduates....

2.1 Does the program have a limited number of specific long-term performance measures that focus on outcomes and meaningfully reflect the purpose of the program? Answer: YES Question Weight: 8%

Explanation: Specific long-term performance measures for NSF's investments in Individuals are listed in the 'Measures' tab. These are drawn from the objectives set forth in the NSF Revised GPRA Strategic Plan, and they encompass NSF's commitment to broadening participation in science and engineering and to strengthening the U.S. workforce in science, technology, engineering and mathematics (STEM).

Evidence: Measures Tab

2.2 Does the program have ambitious targets and timeframes for its long-term measures? Answer: YES Question Weight: 8%

Explanation: The long-term measures for NSF's investments in Individuals are verifiable, as assessed by external advisory committees. This ensures that the goals and timeframes for these activities are appropriately ambitious and that they promote continuous improvement. The primary mechanisms for external evaluation are the Advisory Committee for GPRA Performance Assessment (last meeting 6/24-25/2003) and the Committee of Visitors process. Other external guidance includes 3rd party program assessments and PI meetings.

Evidence: AC GPA Report: http://www.nsf.gov/od/gpra/reports/final_report_1107.doc FY 2002 Performance and Accountability Report/PEOPLE Discussion: http://www.nsf.gov/pubs/2003/nsf03023/pdf/chapter3.pdf

2.3 Does the program have a limited number of specific annual performance measures that can demonstrate progress toward achieving the program's long-term goals? Answer: YES Question Weight: 8%

Explanation: NSF is in the process of developing appropriate measures, baselines, and targets for its investments in Individuals. Until now, NSF's assessment processes have been based on qualitative evaluations (under the 'alternative format' authorized by GPRA). The agency has identified a number of potential quantitative annual measures, shown in the Measures Tab, that relate directly to the agency's strategic goals.

Evidence: Measures Tab

Program Assessment Rating Tool (PART)

Program: Individuals
Agency: National Science Foundation
Bureau:
Type(s): Research and Development Competitive Grant

Section Scores				Overall Rating
1	2	3	4	Effective
100%	91%	100%	83%	

2.4 **Does the program have baselines and ambitious targets for its annual measures?** Answer: NO Question Weight: 8%

Explanation: As is described in Q2.3 (above), NSF is developing measures, baselines, and targets for its investments in individuals. The annual measures shown in the measures tab provide valuable indicators of progress, but further analysis is required before specific baselines and targets can be identified.

Evidence: Measures Tab

2.5 **Do all partners (including grantees, sub-grantees, contractors, cost-sharing partners, and other government partners) commit to and work toward the annual and/or long-term goals of the program?** Answer: YES Question Weight: 8%

Explanation: The key partners for NSF's investments in Individuals both commit to and work toward the goals of the program. The commitment is ensured through the mechanisms described in the response to Q1.5 -- namely the combination of the program purpose being expressed in program solicitations and the selection of awards through the merit review process. NSF then ensures that its partners are working toward the goals of the program via the following mechanisms: 1) continuing support (i.e. renewals, continuations) is based upon annual progress reports submitted by grantees and reviewed by NSF program officers; 2) to receive further support (subsequent awards), all applicants are required to report on the results of previous NSF support, which is then considered in the merit review process.

Evidence: Annual Reports, Final Project Reports. CAREER places special emphasis on document the commitment of grantees. The following statement is included in the CAREER solicitation with respect to annual reports: "For CAREER awards, the report must be approved by the principal investigator's department head or equivalent, thereby reaffirming the department's endorsement of the work plan and continuing partnership in the individual's career-development plan."

2.6 **Are independent evaluations of sufficient scope and quality conducted on a regular basis or as needed to support program improvements and evaluate effectiveness and relevance to the problem, interest, or need?** Answer: YES Question Weight: 20%

Explanation: Evaluations are conducted regularly in order to inform program improvements and influence program planning. Each activity at NSF is reviewed once every three years by a COV. NSF's approach to evaluation was recently highlighted by GAO as an "evaluation culture--a commitment to self-examination, data quality, analytic expertise, and collaborative partnerships." Advisory Committees review Directorate performance, and as of FY 2002 the Advisory Committee for GPRA Performance Assessment assesses performance on an NSF-wide basis for the Strategic Goals. NSF conducts workshops, PI meetings, and various aspects of the Individuals program have been reviewed by external entities. NSF staff and external experts conduct site visits for major activities, such as IGERT sites. All these activities inform NSF senior management and contribute to development of plans for the agency. NOTE: The weight of this question has been increased to 20% to reflect the importance of independent evaluation in verifying the relevance, quality, and performance of NSF's investments in Individuals.

Evidence: * Program Evaluation: An Evaluation Culture and Collaborative Partnerships Help Build Agency Capacity GAO-03-454 May 2, 2003 * COV reports and NSF responses. * AC reports, including the Advisory Committee for GRPA Assessment (AC/GPA) report (Fall 2002). * External reviews. * Community workshops. * Three-year reviews that include external experts for IGERT and VIGRE.

Program Assessment Rating Tool (PART)

Program: Individuals
Agency: National Science Foundation
Bureau:
Type(s): Research and Development Competitive Grant

Section Scores				Overall Rating
1	2	3	4	Effective
100%	91%	100%	83%	

2.7 **Are Budget requests explicitly tied to accomplishment of the annual and long-term performance goals, and are the resource needs presented in a complete and transparent manner in the program's budget?** Answer: YES Question Weight: 8%

Explanation: Performance information informs NSF's budget decisions and is incorporated into NSF's budget requests to the Congress. The FY 2004 Congressional justification was built around the R&D Criteria, thereby highlighting specific performance information for NSF's investment portfolio. For NSF's investments in Individuals, for example, the FY 2004 highlights the accomplishments of recipients of NSF graduate fellowships, noting that four former GRF recipients received the Nobel Prize in 2001 and two received the National Medal of Science. The budget also clearly presents the resource request for each program and outlines the activities that will be supported with the funds. In addition, the FY 2004 Request provided full budgetary costing by the program framework in use at that time (Strategic Goals and Directorates). For the FY 2005 Budget, NSF will display the full budgetary cost associated with the new program framework defined in the Revised GPRA Strategic Plan.

Evidence: FY 2004 Congressional Justification, http://www.nsf.gov/bfa/bud/fy2004/toc.htm. Full budgetary costing discussion begins on page 144.

2.8 **Has the program taken meaningful steps to correct its strategic planning deficiencies?** Answer: YES Question Weight: 8%

Explanation: For NSF's investments in Individuals, the Committee of Visitors process (COV) provides a valuable mechanism for identifying and addressing planning-related issues. Through the COVs, NSF receives feedback on the activity's goals and overall effectiveness. Steps to address identified weaknesses are identified. For example, in the FY 2001 COV review of the CAREER program, one of the recommendations of the COV was to broaden the base of applicants to include, among others, minority investigators and minority-serving institutions. In response, NSF awarded a grant in FY 2002 to fund a three-year series of CAREER workshops for minority investigators and investigators at minority serving institutions. The first workshops were held in January and March of 2003, in preparation for submission to the FY 2004 CAREER competition.

Evidence: * COV reports and NSF responses. * AC reports. * External Evaluations.

2.CA1 **Has the agency/program conducted a recent, meaningful, credible analysis of alternatives that includes trade-offs between cost, schedule, risk, and performance goals and used the results to guide the resulting activity?** Answer: NA Question Weight: 0%

Explanation:

Evidence:

2.RD1 **If applicable, does the program assess and compare the potential benefits of efforts within the program to other efforts that have similar goals?** Answer: YES Question Weight: 8%

Explanation: NSF's investments in Individuals address unique national STEM workforce needs that are not under the purview of the more mission-specific federal, state or local agencies. The Office of Science and Technology Policy, the National Science and Technology Council, the National Science Board, OMB, the Congress, and other policy-making bodies regularly review NSF's investments in Individuals in the context of the overall Federal investment in science and engineering.

Evidence: NSTC Subcommittee on Education and Workforce Development, NSB Report on National Workforce Policy.

Program Assessment Rating Tool (PART)

Program: Individuals
Agency: National Science Foundation
Bureau:
Type(s): Research and Development Competitive Grant

Section Scores				Overall Rating
1	2	3	4	Effective
100%	91%	100%	83%	

2.RD2 **Does the program use a prioritization process to guide budget requests and funding decisions?** Answer: YES Question Weight: 8%

Explanation: NSF's investments in Individuals employs rigorous prioritization processes for developing its budget requests and determining its funding decisions. For budget requests, each of the activities within the program provides input to senior management about past performance and future needs. Senior management integrates that information, prioritizes budget requests within and between programs, and determines funding levels, all of which is reviewed by the National Science Board. For funding decisions, the program relies on the external merit review system as well as internal factors (addressing NSF's core strategies, maintaining a diverse portfolio, etc.) to prioritize proposals.

Evidence: Budget requests: Strategic Plan, Congressional JustificationsFunding decisions: Grant Proposal Guide

3.1 **Does the agency regularly collect timely and credible performance information, including information from key program partners, and use it to manage the program and improve performance?** Answer: YES Question Weight: 8%

Explanation: Performance information is collected via interim, annual and final project reports. Site visits to larger projects are another mechanism used to collect performance information. COV reviews and recommendations are utilized to improve program performance. Process-related goals such as dwell time can be monitored via the agency's Enterprise Information System (EIS).

Evidence: Interim, annual and final project reportsSite visit reportsCOV reportsEIS

3.2 **Are Federal managers and program partners (including grantees, sub-grantees, contractors, cost-sharing partners, and other government partners) held accountable for cost, schedule and performance results?** Answer: YES Question Weight: 8%

Explanation: NSF awardees must meet annual and final reporting requirements as well as financial record-keeping requirements. Performance is monitored by NSF Program Officers and funds can be withheld pending satisfactory project performance. The efforts of NSF Program Officers are reviewed by their supervisors and by COVs. Corrective actions are taken as needed to assure accountability. Examples: - VIGRE awards are made for five years, but each VIGRE site is subject to a third year review to determine whether it should receive the last two years of funding. Since the activity began, a total of six VIGRE sites did not successfully pass this review and consequently did not receive funding for the final two years. - IGERT has held up Continuing Grant Increments to grantees until necessary progress was demonstrated.

Evidence: Performance Evaluations of NSF EmployeesCOV ReportsAnnual and final reportsNSF Grant General Conditions

3.3 **Are funds (Federal and partners') obligated in a timely manner and spent for the intended purpose?** Answer: YES Question Weight: 8%

Explanation: NSF funds are routinely obligated in a timely manner. A study conducted by PwC found no erroneous payments. NSF's grant monitoring activities ensure that the funds are used for their intended purpose.

Evidence: NSF FY 2001 Risk Assessment for Erroneous PaymentsData on NSF Carryover, found in NSF's Budget Requests to CongressRisk Assessment and Award Monitoring GuideClean opinion on NSF Financial statements

Program Assessment Rating Tool (PART)

Program: Individuals
Agency: National Science Foundation
Bureau:
Type(s): Research and Development Competitive Grant

Section Scores				Overall Rating
1	2	3	4	Effective
100%	91%	100%	83%	

3.4 Does the program have procedures (e.g. competitive sourcing/cost comparisons, IT improvements, appropriate incentives) to measure and achieve efficiencies and cost effectiveness in program execution?

Answer: YES Question Weight: 8%

Explanation: NSF's investments in Individuals take have resulted in procedures to achieve efficiencies and cost effectiveness in program execution. For example, IGERT and other key activities have taken steps to reduce workloads on institutions, on NSF, and on the reviewer community. Foremost among these is placing limits on the number of full proposals that an institution may submit to a competitive solicitation. Similarly, CAREER limits investigators to one submission per round and three reviewed submissions total. Such limits mean that many proposals have already faced a competitive process before they reach NSF, which tends to strengthen them while relieving administrative burden on NSF. In addition, CAREER now issues a new solicitation every three years instead of annually, which greatly reduces the workload at NSF . More generally, NSF is a leader in the vigorous and dynamic use of information technology to advance the agency mission. IT improvements permit more timely and efficient processing of proposals. It has also been an NSF-wide priority to increase the size and duration of the awards it provides. The minimum size and duration for CAREER awards, for example, have been increased in recent years (to a total of $400,000-$500,000 for five years) as part of the NSF-wide effort to increase average size and duration.. This enhances efficiency because larger, longer awards allow the research community to spend more time conducting research and less time preparing proposals to continue funding ongoing projects.

Evidence: NSF 2002 Performance and Accountability Report

3.5 Does the program collaborate and coordinate effectively with related programs?

Answer: YES Question Weight: 8%

Explanation: NSF's investments in Individuals have a long tradition of collaborating and coordinating effectively with related programs. Specifically:- NSF's Graduate Research Fellowship activity provides leadership for the 'fellowship roundtable,' which includes representatives of other Federal as well as privately-funded fellowship programs. The roundtable provides a forum for improving coordination and raising issues of common concern.- NSF's Scholarships for Service were developed jointly with the National Security Agency and the Office of Personnel Management.- NSF has developed a cooperative activity with the NIH called "NSF/NIH Scholar in Residence at NIH" to enable physical scientists and engineers to work as visitors within the biomedical research environment at NIH. A similar program has been developed with the FDA.More generally, NSF regularly shares information with other agencies and participates in coordination activities through OSTP and NSTC. Policy guidance provided by the National Science Board also incorporates perspectives from related programs and investments.

Evidence: NSTC Subcommittee on Education and Workforce Development, NSB Report on National Workforce Policy

3.6 Does the program use strong financial management practices?

Answer: YES Question Weight: 8%

Explanation: NSF's investments in Individuals use NSF's financial management system. NSF is the only agency to receive a 'green' rating for financial management in the President's Management Agenda, and NSF has received a clean opinion on its financial audit for the past five years. The Individuals portfolio contributes to this outstanding assessment.

Evidence: Executive Branch Management ScorecardResults of NSF Financial Audits

Program Assessment Rating Tool (PART)

Program: Individuals
Agency: National Science Foundation
Bureau:
Type(s): Research and Development Competitive Grant

Section Scores				Overall Rating
1	2	3	4	Effective
100%	91%	100%	83%	

3.7 Has the program taken meaningful steps to address its management deficiencies? Answer: YES Question Weight: 8%

Explanation: All activities are included in reviews by NSF's Management Controls Committee which, chaired by the NSF CFO, provides continuing long-term senior executive attention to NSF's management challenges and reforms. In addition, challenges are identified by the NSF IG and through NSF's annual review of financial and administrative systems as required by the FMFIA. In addition, COVs regularly provide feedback on management-related concerns.

Evidence: Office of Inspector General reports and NSF responses; COV reports.

3.CA1 Is the program managed by maintaining clearly defined deliverables, capability/performance characteristics, and appropriate, credible cost and schedule goals? Answer: NA Question Weight: 0%

Explanation:

Evidence:

3.CO1 Are grants awarded based on a clear competitive process that includes a qualified assessment of merit? Answer: YES Question Weight: 20%

Explanation: All of the activities in the Individuals portfolio rely upon NSF's competitive, merit review process that includes external peer evaluation. NOTE: The weight of this question has been increased to 20% to reflect the importance of merit review in verifying the relevance, quality, and performance of NSF's investments in Individuals.

Evidence: EIS; NSF Performance and Accountability Reports

3.CO2 Does the program have oversight practices that provide sufficient knowledge of grantee activities? Answer: YES Question Weight: 8%

Explanation: In FY 2002 NSF established a formal Award Monitoring and Technical Assistance Program (AM&TAP) based on financial and administrative risk assessment of NSF awardee institutions and with a primary focus to on-site monitoring. Consistent with NSF's existing award administration process, AM&TAP is a collaborative effort between administrative and financial managers/technical staff and NSF program managers. Also, to leverage its staff resources, NSF has increased the number of reverse site visits that are especially effective in providing technical assistance to new and other high risk awardees. NSF maintains scientific oversight of all awards through the Annual and Final Project Reports, and funds are tracked (via reporting systems and audits) to verify that funds are used for their designated purpose. S&E limitations on staffing and travel limit our ability to perform the level of oversight that we deem desirable.

Evidence: * COV reports * Quarterly / Annual and Final Project Reports. * Directorate Reviews * FY 2002 Report on the NSF Merit Review System * Annual reviews * Risk Assessment and Award Monitoring Guide * Clean audit opinions * PMA Scorecard for Financial Management

Program Assessment Rating Tool (PART)

Program: Individuals
Agency: National Science Foundation
Bureau:
Type(s): Research and Development Competitive Grant

Section Scores				Overall Rating
1	2	3	4	Effective
100%	91%	100%	83%	

3.CO3 **Does the program collect grantee performance data on an annual basis and make it available to the public in a transparent and meaningful manner?** Answer: YES Question Weight: 8%

Explanation: Program results and other relevant information are made available via a number of mechanisms -- ranging from award information on the NSF web site to publications. It is required under NSF's general grant terms and conditions that all NSF awardees publish the results of their research in public journals. In addition, award abstracts for all funded projects are available on the NSF web site. NSF's investments in Individuals also provide additional information on program accomplishments. Examples include: For IGERT, each project maintains a web site that is aimed at general audiences. For CAREER activities, there is a separate web site through which users can search the abstracts for all CAREER awards. The VIGRE program has a Website that gives information on all current VIGRE sites.

Evidence: NSF Grant Proposal Guide: http://www.nsf.gov/pubsys/ods/getpub.cfm?gpg;IGERT: http://www.nsf.gov/home/crssprgm/igert/igertprojects.htm; CAREER: http://www.nsf.gov/home/crssprgm/career/awardsearch2.cfmVIGRE: The URL is http://www.vigre.org/ but may be migrated to the NSF site in the near future.

3.RD1 **For R&D programs other than competitive grants programs, does the program allocate funds and use management processes that maintain program quality?** Answer: NA Question Weight: 0%

Explanation: All NSF programs are administered as competitive grant programs

Evidence:

4.1 **Has the program demonstrated adequate progress in achieving its long-term performance goals?** Answer: YES Question Weight: 17%

Explanation: NSF relies on external evaluation to determine whether it is achieving its long-term objectives. In FY 2002, the NSF Advisory Committee for GPRA Performance Assessment was the focal point for these activities. In FY 2001, these evaluations worked through NSF's Directorate Advisory Committees. In both years, the reviews found that NSF's accomplishments under the PEOPLE goal have "demonstrated significant achievement." Both sets of reviews specifically considered indicators that parallel the objectives of the Individuals portfolio.

Evidence: Measures Tab; NSF FY 2002 PAR, p. II-40-41; FY 2001 NSF GPRA Performance Report (http://www.nsf.gov/pubsys/ods/getpub.cfm?nsf02105).

4.2 **Does the program (including program partners) achieve its annual performance goals?** Answer: SMALL EXTENT Question Weight: 17%

Explanation: As was noted in Q2.4, NSF is in the process of developing appropriate targets for its annual performance measures. Hence, the answer here can be no higher than "Small Extent," even though NSF has shown progress under all of the indicators identified.

Evidence: See Measures tab.

Program: Individuals
Agency: National Science Foundation
Bureau:
Type(s): Research and Development Competitive Grant

Section Scores				Overall Rating
1	2	3	4	Effective
100%	91%	100%	83%	

4.3 Does the program demonstrate improved efficiencies or cost effectiveness in achieving program goals each year?
Answer: LARGE EXTENT Question Weight: 17%

Explanation: For NSF's investments in Individuals, the stipends provided under GRF and IGERT have met or exceeded NSF's target for the past four years. Efficiency goals were a major reason why NSF has sought this increase, as the increased funding allows students to focus more directly on their education rather than having to devote time and energy to seeking other sources of support. Similarly, the emphasis on increased award size and duration in CAREER means that NSF need not assess as many proposals or fund as many awards over the academic career of that particular individual. Additionally, the changes in practices for programs such as CAREER and IGERT noted in Question 3.4 have all achieved the intended efficiency gains. More generally, NSF is a leader in the vigorous and dynamic use of information technology to advance the agency mission. IT improvements have eliminated grantee mailing costs, significantly reduced printing costs and permitted more timely and efficient processing of proposals.

Evidence: Measures Tab, NSF Budget Justifications, NSF 2002 Performance and Accountability Report, p. II-68

4.4 Does the performance of this program compare favorably to other programs, including government, private, etc., with similar purpose and goals?
Answer: YES Question Weight: 17%

Explanation: NSF's activities through its investments in Individuals address national STEM workforce needs that are not addressed by the mission agencies. Because of their recognized effectiveness, aspects of NSF investments in Individuals are often emulated by other programs in government and the private sector. The NSF activities also create a national response to address the goals of the program.

Evidence: USDA has developed a graduate traineeship program based directly on IGERT with guidance from NSF. GRFs has also been considered a model for development of fellowship programs in other countries. The national response to the NSF program is evidenced by the number of proposals (e.g., in FY 2003, IGERT received 425 preproposals, for which only approximately 20 proposals or 5% can be funded due to budget constraints), and the fact that many of the unfunded projects will promote efforts toward the goals of the program.

4.5 Do independent evaluations of sufficient scope and quality indicate that the program is effective and achieving results?
Answer: YES Question Weight: 30%

Explanation: The most recent evaluation that included the entire Individuals portfolio was the 2002 meeting of the ACGPA. The AC GPA wrote: "The 'People' Indicator retrospective portfolio was impressive in its diversity, breadth, and impact. Significant achievements were accomplished in all areas of the People portfolio." In reaching this determination, the committee specifically considered indicators that matched the objectives used here for Individuals. NOTE: The weight of this question has been increased to 20% to reflect the importance of independent evaluation in verifying the relevance, quality, and performance of NSF's investments in Individuals.

Evidence: AC GPA Report: http://www.nsf.gov/od/gpra/reports/final_report_1107.doc FY 2002 Performance and Accountability Report/PEOPLE Discussion: http://www.nsf.gov/pubs/2003/nsf03023/pdf/chapter3.pdf

4.CA1 Were program goals achieved within budgeted costs and established schedules?
Answer: NA Question Weight: 0%

Explanation:

Evidence:

PART Performance Measurements

Program: Individuals

Agency: National Science Foundation

Bureau:

Measure: External validation of "signficant achievement" in promoting diversity in the science and engineering workforce through increased participation of underrepresented groups in NSF activities.

Additional Information: This objective speaks directly to NSF's statutory responsibilities. It will be evaluated through the external Advisory Committee for GPRA (ACGPA).

Year	Target	Actual
FY 2001	Success	Success
FY 2002	Success	Success
FY 2003	Success	Success
FY 2006	Success	
FY 2009	Success	

Measure Term: Long-term

Measure: Number of applicants for Graduate Research Fellowships from groups that are underrepresented in the science and engineering workforce. (NSF is working to improve targets for this measure.)

Additional Information: Graduate Research Fellowships are NSF's flagship investment in graduate education and training, and outreach efforts to increase the number of applicants from underrepresented groups are an ongoing priority.

Year	Target	Actual
FY2002		730
FY 2003		820
FY 2004	Increase	
FY 2005	Increase	
FY 2006	Increase	

Measure Term: Annual

PART Performance Measurements

Program: Individuals

Agency: National Science Foundation

Bureau:

Measure: Number of applications for CAREER awards from investigators at minority-serving institutions.

Additional Information: CAREER is NSF's flagship investment in the development of young faculty, and broadening the institutional base of applicants to the program is a continuing priority. Outreach efforts have specifically focused on attracting faculty from minority-serving institutions and from a broader geographic base.

Year	Target	Actual	**Measure Term:** Annual
FY2002		60	
FY 2003		67	
FY 2004	Increase		
FY 2005	Increase		
FY 2006	Increase		

Measure: External validation of "significant achievement" in attracting and preparing U.S. students to be highly qualified members of the global S&E workforce.

Additional Information: This objective speaks directly to NSF's statutory responsibilities. It will be evaluated through the ACGPA process.

Year	Target	Actual	**Measure Term:** Long-term
FY 2002	Success	Success	
FY 2003	Success	Success	
FY 2006	Success		
FY 2009	Success		

Measure: Number of U.S. students receiving fellowships through GRF and IGERT.

Additional Information: GRF and IGERT are the two principal sources of graduate student support in the Individuals portfolio.

Year	Target	Actual	**Measure Term:** Annual
FY2002		4,236	
FY 2003		4,250	

PART Performance Measurements

Program: Individuals

Agency: National Science Foundation

Bureau:

Measure: Number of U.S. students receiving fellowships through GRF and IGERT.

Additional Information: GRF and IGERT are the two principal sources of graduate student support in the Individuals portfolio.

Year	Target	Actual
FY 2004	Increase	
FY 2005	Increase	
FY 2006	Increase	

Measure Term: Annual

Measure: Stipend level for GRF and IGERT awards (dollars/year)

Additional Information: Promotes efficiency in achieving program goals by reducing the need for students to seek supplemental funding to support their education and research activities.

Year	Target	Actual
FY 2000		$16,800
FY 2001		$18,000
FY 2002		$21,500
FY 2003	$27,500	$27,500
FY 2004	$30,000	

Measure Term: Annual (Efficiency Measure)

Program Assessment Rating Tool (PART)

Program: Information Technology Research
Agency: National Science Foundation
Bureau:
Type(s): Research and Development | Competitive Grant | Capital Assets and Service Acquisitio

Section Scores				Overall Rating
1	2	3	4	Effective
100%	100%	100%	90%	

1.1 Is the program purpose clear? Answer: YES Question Weight: 20%

Explanation: The Information Technology Research (ITR) program responds to the President's Information Technology Advisory Committee (PITAC) Report of 1999 and the resulting Congressional authorization. PITAC recommended long term goals including increased research on software, scalable information infrastructure, high-end computing and socio-economic impacts of IT, including IT workforce issues. PITAC also called for "acquisition of the most powerful high end computing systems to support science and engineering research."

Evidence: PITAC Report to the President (http://www.itrd.gov/ac/report/); NSF Annual Budget Request to Congress; Congressional Authorization Bill for NSF in FY2000; NSTC's report "IT for the 21st Century: A Bold Investment in America's Future" (http://www.itrd.gov/pubs/it2-ip/); Annual 3-page ITR Descriptions.

1.2 Does the program address a specific and existing problem, interest or need? Answer: YES Question Weight: 20%

Explanation: Information Technology is a major driver of the US economy and is dependent on research advances. ITR stimulates this needed research. ITR also supports innovative IT research that supports advances across the range of science and engineering frontiers.

Evidence: PITAC Report to the President (http://www.itrd.gov/ac/report/); NSF Science and Engineering Indicators 2002: Chapter 8 on Significance of IT (http://www.nsf.gov/sbe/srs/seind02/start.htm)

1.3 Is the program designed so that it is not redundant or duplicative of any other Federal, state, local or private effort? Answer: YES Question Weight: 20%

Explanation: ITR targets long-term, basic, high-risk research in IT of the kind that is too speculative for industry to support. Other government agencies support long-term research, but of a more mission-oriented type. PITAC called for a coordinated, government-wide initiative, so although other agencies received little in new funding, ITR is coordinated through the National Coordinating Office (NCO) for Networking and IT R&D (NITRD) with IT funding programs in other federal agencies.

Evidence: The "Bluebook" supplements to the President's Budget produced annually under the auspices of the NSTC by the National Coordinating Office (NCO) for NITRD . The NCO coordinates and these reports articulate the relationships among agencies that fund IT research and development.

1.4 Is the program design free of major flaws that would limit the program's effectiveness or efficiency? Answer: YES Question Weight: 20%

Explanation: ITR relies on the competitive merit review process, the NSF Program Officer, and Committees of Visitors to ensure program effectiveness and efficiency. Merit review by peers has been recognized as a "best practice" for administering R&D programs. Independent reviews by Committees of Visitors (COVs) and external groups (e.g. the National Research Council, the President's Council of Advisors on Science and Technology (PCAST)) provide additional scrutiny of the portfolio and program goals.

Evidence: R&D Investment Criteria has identified merit review as the model selection method; FY2002 Performance and Accountability Report (http://www.nsf.gov/pubs/2003/nsf03023/pdf/chapter4.pdf); Report to the NSF on the NSF Merit Review Process-FY2002 (http://www.nsf.gov/nsb/documents/2003/merit_rprt/mrreport_2002_final.doc); ITR Program Announcements 2000-2002 (NSF99-167, NSF00-126, NSF01-149, NSF02-168)

Program Assessment Rating Tool (PART)

Program:	Information Technology Research
Agency:	National Science Foundation
Bureau:	
Type(s):	Research and Development Competitive Grant Capital Assets and Service Acquisitio

Section Scores				Overall Rating
1	2	3	4	Effective
100%	100%	100%	90%	

1.5 Is the program effectively targeted, so that resources will reach intended beneficiaries and/or otherwise address the program's purpose directly? Answer: YES Question Weight: 20%

Explanation: The peer review process ensures effective targeting of funding so that investments will reach those most qualified to carry out the research program and will directly address the program's purpose, as expressed in program announcements and solicitations and as embodied in NSF's merit review criteria.

Evidence: NSF Strategic Plan; ITR Program Announcements 2000-2002 (NSF99-167, NSF00-126, NSF01-149, NSF02-168).

2.1 Does the program have a limited number of specific long-term performance measures that focus on outcomes and meaningfully reflect the purpose of the program? Answer: YES Question Weight: 8%

Explanation: Long-term measures have been chosen consonant with the PITAC recommendations and with NSF GPRA measures to assure that the program is effective in terms of its own goals and its performance can be judged and compared to that of other NSF programs. Short-term goals provide evidence for long-term evaluation.

Evidence: ITR Program Announcements FY2000 - FY2003; PITAC Report to the President; NSF Budget Requests FY2000 - FY2003; NSF Strategic Plan; NSF GPRA Plan; NSF-ITR award portfolio at www.itr.nsf.gov; NSTC Bluebooks FY2000-FY2003

2.2 Does the program have ambitious targets and timeframes for its long-term measures? Answer: YES Question Weight: 8%

Explanation: The ITR Program intends to make progress toward its long-term goals and to achieve substantial impact on the nation's IT capabilities and IT workforce by 2008.

Evidence: NSF Budget Requests

2.3 Does the program have a limited number of specific annual performance measures that can demonstrate progress toward achieving the program's long-term goals? Answer: YES Question Weight: 8%

Explanation: Performance measures include construction and operations targets for terascale computing facilities, award size and duration indicators to measure diversified modes of support, number of multi-investigator projects, and number and diversity of people supported.

Evidence: ITR Program Announcements FY2000 - FY2003; ITR Management Plan FY2000-FY2003; Annual Program Reports FY2000-2003; Site Visit Reports. Annual and Final Project Reports.

2.4 Does the program have baselines and ambitious targets for its annual measures? Answer: YES Question Weight: 8%

Explanation: Baselines are obtainable from internal NSF sources and are being developed. Ambitious targets are set under the "Measures" tab.

Evidence: NSF's Enterprise Information System; annual and final reports.

Program:	Information Technology Research			**Section Scores**			**Overall Rating**
Agency:	National Science Foundation			1	2	3	4	Effective
Bureau:				100%	100%	100%	90%	
Type(s):	Research and Development	Competitive Grant	Capital Assets and Service Acquisitio					

2.5 **Do all partners (including grantees, sub-grantees, contractors, cost-sharing partners, and other government partners) commit to and work toward the annual and/or long-term goals of the program?** Answer: YES Question Weight: 8%

Explanation: Program announcements/solicitations provide clear statements of program goals and objectives. Annual and final project reports, required of all awardees, outline progress toward objectives as laid out in the solicitation. Results of prior support are considered when making new awards.

Evidence: ITR Program Announcements FY2000 - FY2003; Terascale competition announcements FY2000-FY2003. Annual and final ITR project reports.

2.6 **Are independent evaluations of sufficient scope and quality conducted on a regular basis or as needed to support program improvements and evaluate effectiveness and relevance to the problem, interest, or need?** Answer: YES Question Weight: 20%

Explanation: Larger projects are site-visited by NSF and external evaluators at least once in 5 years. A Committee of Visitors (COV) for the ITR research component will be held. A COV consists of external experts independent of the NSF and performs a thorough review of an NSF program and renders a report to an NSF advisory committee. The Terascale Computing Facility projects are extensively reviewed each year for performance and contributions to national needs. The Terascale competitions of 2000 and 2001 were recently reviewed by a COV. (The weight of this question has been increased to reflect the importance NSF places on the conduct of independent evaluations to support program improvements and evaluate effectiveness.)

Evidence: Site visit reports; COV for Advanced Computing Infrastructure. ITR COV Report to be conducted.

2.7 **Are Budget requests explicitly tied to accomplishment of the annual and long-term performance goals, and are the resource needs presented in a complete and transparent manner in the program's budget?** Answer: YES Question Weight: 8%

Explanation: Performance information is used by managers to inform decisions and is incorporated into NSF's budget requests to the Congress. The FY 2004 Congressional Justification was built around the R&D Criteria, thereby highlighting specific performance information for NSF's investment portfolio. The budget also clearly presents the resource request for each program and outlines the activities that will be supported with the funds. In addition, the FY 2004 Request provided full budgetary costing by the program framework in use at that time (Strategic Goals and Directorates). For the FY 2005 Budget, NSF will display the full budgetary cost associated with the new program framework defined in the Revised GPRA Strategic Plan.

Evidence: PITAC Report to the President; NSF Budget Requests; FY 2004 Congressional Justification http://www.nsf.gov/bfa/bud/fy2004/toc.htm. Full budgetary costing discussion begins on page 144; R&D Investment Criteria.

2.8 **Has the program taken meaningful steps to correct its strategic planning deficiencies?** Answer: NA Question Weight: 0%

Explanation: No significant strategic planning deficiencies to correct.

Evidence:

Program Assessment Rating Tool (PART)

Program: Information Technology Research
Agency: National Science Foundation
Bureau:
Type(s): Research and Development | Competitive Grant | Capital Assets and Service Acquisitio

Section Scores				Overall Rating
1	2	3	4	Effective
100%	100%	100%	90%	

2.CA1 **Has the agency/program conducted a recent, meaningful, credible analysis of alternatives that includes trade-offs between cost, schedule, risk, and performance goals and used the results to guide the resulting activity?**

Answer: YES Question Weight: 8%

Explanation: This item applies only to the terascale facilities part of the total ITR Program. Terascale computing was the subject of two workshops that assessed community needs and requirements in 1998. Signicant planning, including broad community involvement, was done prior to each solicitation to assure effective objectives and schedules. For each competition, peer reviewers are asked to balance forward looking aspects against excessive risk in making recommendations. The selection process for choosing performers is done through open competition and merit review. The competition compares the "alternatives" and selects one set of projects versus another. ITR selects projects by merit review, which is widely accepted as the optimal investment strategy. NSF works closely and continually with grantees to monitor progress and assure the meeting of milestones. The annual MREFC Chapter of the NSF Budget Request to Congress reviews and summarizes project status, schedules, etc. A recent advisory committee report has revisited the science and engineering community's needs for high performance computing resources.

Evidence: Terascale, Distributed Terascale and Extensible Terascale Program Announcements; Cooperative Agreements; Periodic project reports; "Revolutionizing Science and Engineering through Cyberinfrastructure," 2003 (http://www.communitytechnology.org/nsf_ci_report/); "Terascale and Petascale Computing: Digital Reality in the New Millennium" (http://www.cise.nsf.gov/div/acir/wksp/ter_nsf_rpt.htm); MREFC Chapter of the NSF Budget Request to Congress.

2.RD1 **If applicable, does the program assess and compare the potential benefits of efforts within the program to other efforts that have similar goals?**

Answer: YES Question Weight: 8%

Explanation: PITAC recognized a need not being met by the Federal Government as a whole and recommended NSF take the lead role in addressing this need. No other program of this scope or objectives exists in the Federal Government; however, NSF coordinates with the other federal agencies that support IT research. For funding programs, the "alternatives" amount to funding one set of projects versus another set. ITR selects projects by merit review, which is widely accepted as the optimal investment strategy.

Evidence: PITAC Report to the President; Bluebooks FY2000 - FY2003; PITAC "Discovery" Assessment Report on ITR, 2001; NCO working group reports; COV reports of core CISE programs

2.RD2 **Does the program use a prioritization process to guide budget requests and funding decisions?**

Answer: YES Question Weight: 8%

Explanation: Priority is given to projects seen as innovative, ground-breaking, and high-risk/high-return. To select projects for funding, ITR obtains peer reviews from external experts; NSF Program Managers analyze the reviews and make recommendations (for Medium and Large projects) to an NSF-wide ITR Working Group. At all steps, these priorities are weighed in making decisions. Funds are requested from Congress for topics that the PITAC Report listed as of high priority and other topics based on research community inputs. All NSF directorates weigh the priority of ITR within the context of core programs annually.

Evidence: PITAC Report; ITR Program Announcements FY2000 - FY2003; PITAC Assessment Report 2001; COV Reports of other CISE programs discuss relationship to the ITR Program

Program Assessment Rating Tool (PART)

Program: Information Technology Research
Agency: National Science Foundation
Bureau:
Type(s): Research and Development Competitive Grant Capital Assets and Service Acquisitio

Section Scores				Overall Rating
1	2	3	4	Effective
100%	100%	100%	90%	

3.1 Does the agency regularly collect timely and credible performance information, including information from key program partners, and use it to manage the program and improve performance? Answer: YES Question Weight: 8%

Explanation: Performance information is collected via interim, annual and final project reports. Site visits to larger projects are another mechanism used to collect performance information. COV reviews and recommendations are utilized to improve program performance. Process-related goals such as dwell time can be monitored via the agency's Enterprise Information System (EIS).

Evidence: ITR Interim, Annual, and Final Project Reports; Site Visit reports; COV Reports; EIS.

3.2 Are Federal managers and program partners (including grantees, sub-grantees, contractors, cost-sharing partners, and other government partners) held accountable for cost, schedule and performance results? Answer: YES Question Weight: 8%

Explanation: NSF awardees must meet annual and final reporting requirements as well as financial record keeping requirements. Performance is monitored by NSF Program Officers and funds can be withheld pending satisfactory project performance. Facilities are subject to GPRA Performance Reporting Requirements. The efforts of NSF Program Officers are reviewed by their supervisors and by COVs. Corrective actions are taken as needed to assure accountability.

Evidence: Performance Evaluations of NSF program officers; COV Reports; Annual and final project reports; GPRA Facilities Performance Reports; NSF Grant General Conditions

3.3 Are funds (Federal and partners') obligated in a timely manner and spent for the intended purpose? Answer: YES Question Weight: 8%

Explanation: ITR funds are routinely obligated in a timely manner. A study conducted by PricewaterhouseCoopers found no erroneous payments. NSF's grant monitoring activities ensure that the funds are used for their intended purpose.

Evidence: NSF FY2001 Risk Assessment for Erroneous Payments; Data on NSF Carryover, found in NSF's Budget Requests to Congress; Risk Assessment and Award Monitoring Guide; Clean opinion on NSF Financial statements for the past 5 years

3.4 Does the program have procedures (e.g. competitive sourcing/cost comparisons, IT improvements, appropriate incentives) to measure and achieve efficiencies and cost effectiveness in program execution? Answer: YES Question Weight: 8%

Explanation: NSF is a leader in the vigorous and dynamic use of information technology to advance the agency mission. ITR has, each year since its inception in 2000, made programmatic adjustments to increase efficiency and impact: In 2001, ITR moved from a 2-tier to a 3-tier competition, separated by award size, to make review comparisons more effective and assure a spread of award sizes; Also in 2001, ITR limited to 2 the number of ITR proposals any individual could submit; In 2002, ITR adjusted its use of pre-proposals to reduce reviewing workload.

Evidence: NSF Strategic Plan; NSF Grant Proposal Guide; NSF 2002 Performance and Accountability Report; ITR Solicitations FY2000 - FY2002.

Program Assessment Rating Tool (PART)

Program: Information Technology Research
Agency: National Science Foundation
Bureau:
Type(s): Research and Development Competitive Grant Capital Assets and Service Acquisitio

Section Scores				Overall Rating
1	2	3	4	Effective
100%	100%	100%	90%	

3.5 Does the program collaborate and coordinate effectively with related programs? Answer: YES Question Weight: 8%

Explanation: Specific mechanisms are established for split-funding between ITR and other related NSF program. DARPA and multiple intelligence agencies have co-funded selected ITR projects. ITR also coordinates with programs in other agencies through the Interagency Working Group (IWG) on Information Technology Research and Development (IT R&D), which has six interagency "Coordinating Groups" for different aspects of the Networking and IT R&D (NITRD) Program.

Evidence: ITR Management Plan

3.6 Does the program use strong financial management practices? Answer: YES Question Weight: 8%

Explanation: NSF was the first federal agency to receive a "green light" for financial management on the PMA Scorecard. NSF has received clean opinions on its financial audits in recent years.

Evidence: Executive Branch Management Scorecard; Results of NSF Financial Audits; Performance and Management Assessments (http://www.whitehouse.gov/omb/budget/fy2004/pma.html)

3.7 Has the program taken meaningful steps to address its management deficiencies? Answer: YES Question Weight: 8%

Explanation: ITR is overseen by a cognizant NSF Assistant Director (AD) and by the NSF Senior Management Group, as well as by the Inspector General. No serious management deficiencies have been identified by these processes; however, the cognizant AD had identified the need for additional staff and has been able to slightly increase the staff. Still, S&E limitations have not allowed sufficient staffing and travel for the level of project oversight that NSF deems desirable.

Evidence: ITR annual report to NSF Senior Management

3.CA1 Is the program managed by maintaining clearly defined deliverables, capability/performance characteristics, and appropriate, credible cost and schedule goals? Answer: YES Question Weight: 8%

Explanation: This item applies only to the terascale facilities part of the total ITR Program. Facilities awards are made as cooperative agreements with clearly defined deliverables, capability/performance characteristics, and appropriate, credible cost and schedule goals. Terascale investments are managed with milestones and regular financial and performance reports.

Evidence: Annual and final project reports; Annual and Biannual progress reviews; Capital Assets Plan; Annual Program Reports.

3.CO1 Are grants awarded based on a clear competitive process that includes a qualified assessment of merit? Answer: YES Question Weight: 20%

Explanation: Funds are allocated via a competitive, merit-review process followed by review analysis by NSF Program Officers, who make recommendations to the NSF-wide ITR Working Group. (The weight of this question has been increased to reflect the importance of external merit review in validating the quality of this basic research program.)

Evidence: EIS; NSF Performance and Accountability Reports

Program: Information Technology Research
Agency: National Science Foundation
Bureau:
Type(s): Research and Development Competitive Grant Capital Assets and Service Acquisitio

Section Scores				Overall Rating
1	2	3	4	Effective
100%	100%	100%	90%	

3.CO2 **Does the program have oversight practices that provide sufficient knowledge of grantee activities?** Answer: YES Question Weight: 8%

Explanation: Expenditures are tracked to verify that funds are used for their designated purposes. In FY 2002 NSF established a formal Award Monitoring and Technical Assistance Program (AM&TAP) based on financial and administrative risk assessment of NSF awardee institutions and with on-site monitoring as a primary focus. Consistent with NSF's existing award administration process, AM&TAP is a collaborative effort between administrative and financial managers/technical staff and NSF program managers. Also, to leverage its staff resources, NSF has increased the number of reverse site visits that are especially effective in providing technical assistance to new and other high risk awardees. NSF maintains scientific oversight of all awards through the Annual and Final Project Reports. S&E limitations on staffing and travel limit our ability to perform the level of oversight that we deem desirable.

Evidence: Annual Reports; Site Visit Reports.OIG clean audit opinionsPMA "Green Light" in Financial Management

3.CO3 **Does the program collect grantee performance data on an annual basis and make it available to the public in a transparent and meaningful manner?** Answer: YES Question Weight: 8%

Explanation: NSF Grant General Conditions require that results of NSF-supported research be published in the open literature and that NSF support is appropriately referenced / cited. NSF's annual Performance and Accountability report contains highlights of NSF-supported research, including results of ITR awards. Grantees provide annual progress reports to NSF which are examined and approved/disapproved by the program directors. Grantees also provide additional input for the purpose of GPRA reporting requirements. Terascale progress reports are available at sites. The public has web access to data on numbers of proposals and numbers of awards as well as, for each award, the name of the principal investigator, the awardee institution, amount of the award, and an abstract of the project. In addition, grantees are obligated to publish their research results in the open professional literature and to acknowledge the NSF support by award number in all such publications. Annual and final reports are available through FOIA.

Evidence: Annual and final project reports; Annual Program Reports.NSF FY 2002 Performance and Accountability ReportNSF Grant General Conditions (GC-1)

3.RD1 **For R&D programs other than competitive grants programs, does the program allocate funds and use management processes that maintain program quality?** Answer: NA Question Weight: 0%

Explanation: ITR is a competitive grants program.

Evidence:

4.1 **Has the program demonstrated adequate progress in achieving its long-term performance goals?** Answer: LARGE EXTENT Question Weight: 15%

Explanation: High level of research activity has been stimulated by the ITR Program. New directions started, new interdisciplinary activities instituted, communities expanded.

Evidence: PITAC "Discovery" Assessment Report on ITR, 2001 (http://www.itrd.gov/pitac/meetings/meetings-2001.html); Preliminary ITR Report; Annual Program Reports 2001-2002

Program:	Information Technology Research				**Section Scores**		**Overall Rating**
Agency:	National Science Foundation			1	2	3	4	Effective
Bureau:				100%	100%	100%	90%	
Type(s):	Research and Development	Competitive Grant	Capital Assets and Service Acquisitio					

4.2 **Does the program (including program partners) achieve its annual performance goals?** Answer: LARGE EXTENT Question Weight: 15%

Explanation: In general, ITR has been successful in achieving its annual performance goals.

Evidence: Annual and Final Project Reports; PITAC "Discovery" Assessment Report on ITR, 2001; Preliminary ITR Report; Annual Program Reports 2001-2002

4.3 **Does the program demonstrate improved efficiencies or cost effectiveness in achieving program goals each year?** Answer: YES Question Weight: 15%

Explanation: NSF is a leader in the vigorous and dynamic use of information technology to advance the agency mission. IT improvements have eliminated grantee mailing costs, significantly reduced printing costs, and permitted more timely and efficient processing of proposals. In FY2000, ITR was volunteered to be one of the first, and the largest NSF programs to use the new FastLane Interactive Panel System. This on-line system allows panelists to submit reviews electronically before the panel meeting, read other panelists reviews and comments on-line, and enter and approve panel summaries on-line, thereby eliminating a large amount of paperwork, photocopying, and lost materials. Great improvements were made during that year in the Fastlane system as a result of this high-volume activity.

Evidence: NSF 2002 Performance and Accountability Report.

4.4 **Does the performance of this program compare favorably to other programs, including government, private, etc., with similar purpose and goals?** Answer: YES Question Weight: 15%

Explanation: This program enhances the diversity of modes of funding. Performance for ITR awards is compared to the Computer and Information Science and Engineering (CISE) core programs portfolio, particularly with respect to interdisciplinary projects and awards size and duration. In 2001, the PITAC reviewed the IT-related programs across the federal research funding agencies with favorable findings presented in oral summaries in plenary session.

Evidence: PITAC "Discovery" Assessment Report on ITR, 2001; Enterprise Information System data (internal)

4.5 **Do independent evaluations of sufficient scope and quality indicate that the program is effective and achieving results?** Answer: YES Question Weight: 25%

Explanation: Assessments have found that the program is effective and achieving results. Interdisciplinary research increased, more diverse modes of funding achieved, and larger scale projects funded. The Advisory Committee for GPRA (ACGPA) assessed ITR as an Area of Emphasis in NSF and reported that "The quality, creativity, importance and breadth of the projects in the ITR Emphasis Area are impressive...The portfolio demonstrates a good balance of risky, high potential benefit projects versus less risky research. Many of the projects are multidisciplinary." (The weight of this question has been increased to reflect the importance of independent evaluations in assessing effectiveness of basic research programs.)

Evidence: PITAC "Discovery" Assessment Report on ITR, 2001; "FY2002 Performance and Accountability Report" (ACGPA)

Program Assessment Rating Tool (PART)

Program:	Information Technology Research
Agency:	National Science Foundation
Bureau:	
Type(s):	Research and Development Competitive Grant Capital Assets and Service Acquisitio

Section Scores				Overall Rating
1	2	3	4	Effective
100%	100%	100%	90%	

4.CA1 **Were program goals achieved within budgeted costs and established schedules?** Answer: YES Question Weight: 15%

Explanation: This item applies only to the terascale facilities part of the total ITR Program. The program successfully held a competition each year for creation or expansion of terascale facilities. The first facility (Terascale Computing Facility at the Pittsburgh Supercomputing Center (PSC)) was constructed on schedule and on budget. The Distributed Terascale System and Extensible Terascale Facility are under construction and currently on schedule. The Capital Asset Plan for Terascale computing shows that performance goals are being met. The computing capability of the facility has exceeded specifications to date.

Evidence: Capital Asset Plan; Annual and Biannual progress reports.

PART Performance Measurements

Program: Information Technology Research

Agency: National Science Foundation

Bureau:

Measure: Qualitative assessment by external experts that there have been significant research contributions to software design and quality, scalable information infrastructure, high-end computing, workforce, and socio-economic impacts of IT.

Additional Information: Assessed by COV or PITAC. The first COV for ITR is scheduled in 2005. A PITAC discussion of ITR can be found at http://www.itrd.gov/pitac/meetings/meetings-2001.html

Year	Target	Actual
2005	Success	
2008	Success	
2011	Success	

Measure Term: Long-term

Measure: Average annual award size for new ITR research grants. This measure promotes increasing award size, rather than supporting a greater number of smaller grants, which helps improve the efficiency of researcher time.

Additional Information: Responds to PITAC goal to diversify modes of IT research funding and to NSF goal to improve funding efficiency through award size. ITR was planned as a Priority Area through 2004, so the activity and its targets will be reassessed and restructured.

Year	Target	Actual
2001		$242,270
2002		$226,454
2003	$230,000	$276,000
2004	$230,000	

Measure Term: Annual

Measure: Average award duration of new ITR research grants (in years).

Additional Information: Responds to PITAC goal to diversify modes of IT research funding and to NSF goal to improve funding efficiency through award duration. ITR was planned as a Priority Area through 2004, so the activity and its targets will be reassessed and restructured.

Year	Target	Actual
2001		3.4
2002		3.3
2003	3.3	3.7

Measure Term: Annual (Efficiency Measure)

PART Performance Measurements

Program: Information Technology Research

Agency: National Science Foundation

Bureau:

Measure: Average award duration of new ITR research grants (in years).

Additional Information: Responds to PITAC goal to diversify modes of IT research funding and to NSF goal to improve funding efficiency through award duration. ITR was planned as a Priority Area through 2004, so the activity and its targets will be reassessed and restructured.

Year	Target	Actual	**Measure Term:** Annual (Efficiency Measure)
2004	3.3		

Measure: Qualitative assessment by external experts that the program is serving the appropriate role in ensuring that grantees meaningfully and effectively collaborate across disciplines of science and engineering.

Additional Information: Interdisciplinary research is assessed by experts to determine if collaboration yields better results than individual projects; if collaboration is authentic, etc. Assessed by COV. The first COV for ITR is scheduled in 2005.

Year	Target	Actual	**Measure Term:** Long-term
2005	Success		
2008	Success		
2011	Success		

Measure: Peak available teraflops (trillions of operations per second) for scientific computation

Additional Information: Teraflops (trillions of floating-point operations per second) are a measure the power/speed of the computing facilities. About 80% of the quoted numbers are available at any time of the year to the academic and broader scientific community. After 2004, NSF will continue to upgrade and improve the ITR funded Terascale Computing facilities and provide the indicated level or higher to S&D users, thoughthe funding sources for the facilities are yet to be determined.

Year	Target	Actual	**Measure Term:** Annual
2001	0	0.34	
2002	6	6	
2003	10	12.4	
2004	20		

PART Performance Measurements

Program: Information Technology Research

Agency: National Science Foundation

Bureau:

Measure: Percent of ITR proposals that are multi-investigator

Additional Information: Responds to PITAC goal to diversify modes of funding. Multi-investigator projects conduct larger scale, deeper investigations. The targets are high relative to NSF averages. ITR was planned as a Priority Area through 2004, so the activity and its targets will be reassessed and restructured.

Year	Target	Actual	**Measure Term:** Annual
2001		56%	
2002		59%	
2003	50%	59%	
2004	50%		

Measure: Percent of ITR proposals with at least one minority PI or Co-PI

Additional Information: A measure of the diversity of the community supported by ITR. These are agressive targets for a discipline with extremely low numbers of minority PhDs. ITR was planned as a Priority Area through 2004, so the activity and its targets will be reassessed and restructured.

Year	Target	Actual	**Measure Term:** Annual
2001		7%	
2002		7%	
2003	7%	7%	
2004	7%		

Measure: Percent of ITR proposals with at least one female PI or Co-PI

Additional Information: A measure of the diversity of the community supported by ITR. These are aggressive targets for the discipline with the lowest numbers of female PhDs of all the sciences. ITR was planned as a Priority Area through 2004, so the activity and its targets will be reassessed and restructured.

Year	Target	Actual	**Measure Term:** Annual
2001		24%	
2002		25%	
2003	24%	26%	
2004	25%		

Program Assessment Rating Tool (PART)

Program: Nanoscale Science and Engineering
Agency: National Science Foundation
Bureau:
Type(s): Research and Development Competitive Grant Capital Assets and Service Acquisition

Section Scores				Overall Rating
1	2	3	4	Effective
100%	100%	100%	90%	

1.1 Is the program purpose clear? Answer: YES Question Weight: 20%

Explanation: The program has a clear and unambiguous mission. Nanoscale Science and Engineering (NS&E) is part of an interagency initiative (NNI) under which NSF has primary responsibility for fundamental research, education and provision of research infrastructure. The goal of NS&E is to support fundamental knowledge creation across disciplinary principles, phenomena, and tools at the nanoscale, and to catalyze synergistic science and engineering research and education in emerging areas of nanoscale science and technology.

Evidence: * Nanotechnology Research Directions: IWGN Workshop Report; NSTC Committee on Technology; September 1999 * National Nanotechnology Initiative - The Initiative and its Implementation Plan; NSTC Committee on Technology; July 2000 * National Nanotechnology Initiative - The Initiative and its Implementation Plan; NSTC Committee on Technology; June 2002 * Small Wonders, Endless Frontiers: A Review of the NNI; National Academies Press; 2002 * NSF Authorization Bill, FY 2003-2005 * NSF Budget Requests to Congress (FY 2001-2004)

1.2 Does the program address a specific and existing problem, interest or need? Answer: YES Question Weight: 20%

Explanation: NS&E responds to the national need to develop a knowledge base, workforce and infrastructure to advance nanotechnology. Nanotechnology is one of the most important emerging technologies with the potential to transform all fields of science and to enable revolutionary technologies that can advance electronics, health, manufacturing, energy and food and agricultural systems, and promote a sustainable environment. All major regions of the world have launched widescale efforts to promote nanoscience and nanoscale engineering. Successful developments in nanotechnology could play a key role in U.S. global competitiveness in the future. Sustained, long-term federal support for research, education and infrastructure is required if the nation is to realize the potential of nanoscale science and engineering. Nanoscale technologies cannot be commercialized until industry has confidence that they will provide a competitive advantage in the marketplace. Key to this market is enabling a well-equipped nanotechnology workforce. NS&E not only aims to facilitate this skilled workforce, but also to create new paradigms of science education, from the K-12 level through graduate school. Nanotechnology is in its infancy and substantial fundamental research will be needed to develop the science base and the proven technologies that will form the basis for commercial products. The time frame for private sector investments is relatively short--generally 5 years or less. The broad interdisciplinary nature of nanotechnology also makes it difficult for individual companies or industries to capture the benefits of nanotechnology research. NS&E supports the NNI Grand Challenges-- a coordinated interagency effort designed to capitlize on the emerging potential of nanoscale science and engineering. New tools that have been developed recently have made possible new discoveries in nanotechnology that can rapidly advance the field.

Evidence: * Nanotechnology Research Directions: IWGN Workshop Report; NSTC Committee on Technology; September 1999 * National Nanotechnology Initiative - The Initiative and its Implementation Plan; NSTC Committee on Technology; July 2000 * National Nanotechnology Initiative - The Initiative and its Implementation Plan; NSTC Committee on Technology; June 2002 * Small Wonders, Endless Frontiers: A Review of the NNI; National Academies Press; 2002 * PCAST Letter on the NNI to the President; December 1999 * House of Representative bill H.R. 766; May 2003

Program Assessment Rating Tool (PART)

Program:	Nanoscale Science and Engineering
Agency:	National Science Foundation
Bureau:	
Type(s):	Research and Development Competitive Grant Capital Assets and Service Acquisition

Section Scores				Overall Rating
1	2	3	4	Effective
100%	100%	100%	90%	

1.3 Is the program designed so that it is not redundant or duplicative of any other Federal, state, local or private effort? Answer: YES Question Weight: 20%

Explanation: NSF is lead agency for the National Nanotechnology Initiative (NNI). Within NNI, NSF supports fundamental research, education, and provision of research infrastructure. The NSTC's Subcommittee on Nanoscale Science, Engineering and Technology (NSET) coordinates planning and budgets of seventeen agencies, identifies promising research directions and collaborative investments to avoid duplication of effort and ensure development of a balanced infrastructure. NSET members develop a joint, long-term vision and annual implementation plans, and meet each month to discuss collaborations, and have a secretarial office (NNCO) to facilitate these collaborative activities. NSET and NSF have periodic contacts with professional societies, industrial organizations, state and nanotechnology regional alliances representatives to ensure complementary activities in such areas as infrastructure, education and commercialization.

Evidence: * National Nanotechnology Initiative - The Initiative and its Implementation Plan; NSTC Committee on Technology; July 2000 * National Nanotechnology Initiative - The Initiative and its Implementation Plan; NSTC Committee on Technology; June 2002 * NNI websites: www.nano.gov and www.nsf.gov/nano

1.4 Is the program design free of major flaws that would limit the program's effectiveness or efficiency? Answer: YES Question Weight: 20%

Explanation: The purpose of NS&E can best be accomplished by federal research and development support. Within NSF, all NS&E awards are selected by merit review, which has been recognized as a best practice for administering R&D programs. NS&E is managed by a working group, with representation from each participating NSF Directorate. Major decisions are reviewed and approved by NSF senior management. This ensures that resources are targeted toward the most promising activities in nanoscale science and engineering research and education. Independent reviews by Committees of Visitors (COVs) and external groups (the National Research Council, PCAST) provide additional scrutiny of the portfolio and program goals, ensuring effectiveness and operational efficiency.

Evidence: * OMB/OSTP R&D Investment Criteria * Nanoscale Science and Engineering (NSE) Program Solicitation for FY 2001 (NSF 00-119); July 2000 * Nanoscale Science and Engineering (NSE) Program Solicitation for FY 2002 (NSF 01-157); July 2001 * Nanoscale Science and Engineering (NSE) Program Solicitation for FY 2003 (NSF 02-148); July 2002 * NS&E Management Plan (internal document) * Internal NSF Committee of Visitor (COV) reports to relevant participating NSF organizations * FY 2002 Performance and Accountability Report (http://www.nsf.gov/pubs/2003/nsf03023/pdf/chapter4.pdf) * Report to the NSB on the NSF Merit Review Process ' FY 2002 (http://www.nsf.gov/nsb/documents/2003/merit_rprt/mrreport_2002_final.doc)

Program Assessment Rating Tool (PART)

Program: Nanoscale Science and Engineering
Agency: National Science Foundation
Bureau:
Type(s): Research and Development | Competitive Grant | Capital Assets and Service Acquisition

Section Scores				Overall Rating
1	2	3	4	Effective
100%	100%	100%	90%	

1.5 Is the program effectively targeted, so that resources will reach intended beneficiaries and/or otherwise address the program's purpose directly? Answer: YES Question Weight: 20%

Explanation: NS&E directly targets the nanotechnology research community, educators and students; its broad secondary targets include industry, other mission-oriented agencies (provides the crosscutting fundamental research and education foundation and tools necessary in applications) and the general public (for instance, through informal education activities, such as museum displays). The research and education themes were established based on broad interaction with academic and industry communities (see list of workshops and grantees meetings), and are revised each year. All awards are peer reviewed, which ensures that resources are targeted toward the most promising and effective activities, and will directly address NS&E's purpose, as expressed in solicitations and announcements, and as embodied in NSF's merit review criteria. The merit review process explicitly considers the potential of the proposed activity to enhance education and training, the participation of underrepresented groups and EPSCoR states, the potential of partnerships with industry, the dissemination of scientific and technological knowledge, and societal benefits, including enhanced economic growth.

Evidence: * Nanoscale Science and Engineering (NSE) Program Solicitation for FY 2001 (NSF 00-119); July 2000 * Nanoscale Science and Engineering (NSE) Program Solicitation for FY 2002 (NSF 01-157); July 2001 * Nanoscale Science and Engineering (NSE) Program Solicitation for FY 2003 (NSF 02-148); July 2002 * NNI website (www.nano.gov) * NSF website (www.nsf.gov/nano) * Workshops and grantees meetings (lists attached)

2.1 Does the program have a limited number of specific long-term performance measures that focus on outcomes and meaningfully reflect the purpose of the program? Answer: YES Question Weight: 9%

Explanation: NS&E has specific long term performance measures, which are listed in the 'Measures' tab. These encompass development of a capable interdisciplinary research community, provision of the necessary research infrastructure, development of educational curricula, and building a knowledge-base that enables the next industrial revolution. NS&E's long-term measures support priority area objectives, defined in NSF's draft strategic plan.

Evidence: * Small Wonders, Endless Frontiers: A Review of the NNI; National Academies Press; 2002 * NNI website (www.nano.gov) and NSF website (www.nsf.gov/nano) * National Nanotechnology Initiative - The Initiative and its Implementation Plan; NSTC Committee on Technology; June 2002

2.2 Does the program have ambitious targets and timeframes for its long-term measures? Answer: YES Question Weight: 9%

Explanation: NS&E's long-term measures are, indeed, verifiable, as assessed by expert advisory committees. These targets are set at a level that promote continuous improvement of the priority area and the research it supports.

Evidence: * Nanoscale Science and Engineering (NSE) Program Solicitation for FY 2001 (NSF 00-119); July 2000 * Nanoscale Science and Engineering (NSE) Program Solicitation for FY 2002 (NSF 01-157); July 2001 * Nanoscale Science and Engineering (NSE) Program Solicitation for FY 2003 (NSF 02-148); July 2002 * SBIR/STTR Program Announcements: FY 2001-2003

2.3 Does the program have a limited number of specific annual performance measures that can demonstrate progress toward achieving the program's long-term goals? Answer: YES Question Weight: 9%

Explanation: NS&E has annual measures, as defined in the 'Measures' tab. These annual measures provide confidence that NS&E is moving toward accomplishment of its long-term goals.

Evidence:

Program Assessment Rating Tool (PART)

Program:	Nanoscale Science and Engineering
Agency:	National Science Foundation
Bureau:	
Type(s):	Research and Development Competitive Grant Capital Assets and Service Acquisition

Section Scores				Overall Rating
1	2	3	4	Effective
100%	100%	100%	90%	

2.4 Does the program have baselines and ambitious targets for its annual measures? Answer: YES Question Weight: 9%

Explanation: NS&E's annual measures are, indeed, verifiable, and are largely quantifiable. Targets are set at a level that promote continuous improvement of the priority area and the research it supports.

Evidence:

2.5 Do all partners (including grantees, sub-grantees, contractors, cost-sharing partners, and other government partners) commit to and work toward the annual and/or long-term goals of the program? Answer: YES Question Weight: 9%

Explanation: The goals for NS&E are spelled out clearly in the NS&E annual solicitations. Support for these goals is reinforced through grantee workshops, cooperative agreements with the NSF centers and facilities (such as the Science and Technology Center on Nanobiotechnology, Nanoscale Science and Engineering Centers, Engineering Research Centers, etc.). Annual and final project reports, required of all NS&E awardees, outline progress toward objectives, which include goals outlined in the NS&E solicitations. Results of prior support are considered when making new awards.

Evidence: * Nanoscale Science and Engineering (NSE) Program Solicitation for FY 2001 (NSF 00-119); July 2000 * Nanoscale Science and Engineering (NSE) Program Solicitation for FY 2002 (NSF 01-157); July 2001 * Nanoscale Science and Engineering (NSE) Program Solicitation for FY 2003 (NSF 02-148); July 2002 * Cooperative agreements (internal award documents) with relevant centers, and the National Nanofabrication Users Network (NNUN) * Annual and final project reports for NS&E awards (internal award documents)

2.6 Are independent evaluations of sufficient scope and quality conducted on a regular basis or as needed to support program improvements and evaluate effectiveness and relevance to the problem, interest, or need? Answer: YES Question Weight: 20%

Explanation: The NNI Program as a whole has been comprehensively evaluated by the NRC and will continue to receive annual evaluation. Additional comprehensive evaluations have been mandated by PCAST and NSET. A focused evaluation of the MRSEC program will begin in FY 2004. The COVs provide ongoing review of NS&E performance in key fields. Recognizing this, an NS&E-wide COV is planned for FY 2004. (The weight of this question has been increased to reflect the importance NSF places on the conduct of independent evaluations to support program improvements and evaluate effectiveness.)

Evidence: * Small Wonders, Endless Frontiers: A Review of the NNI; National Academies Press; 2002 * National Nanotechnology Initiative - The Initiative and its Implementation Plan; NSTC Committee on Technology; June 2002 * Committee of Visitors reviews (internal documents): Division of Manufacturing and Industrial Innovation (2003); Division of Materials Research (2002) * PCAST Evaluation Letter to the President for NNI.

Program Assessment Rating Tool (PART)

Program: Nanoscale Science and Engineering
Agency: National Science Foundation
Bureau:
Type(s): Research and Development | Competitive Grant | Capital Assets and Service Acquisition

Section Scores				Overall Rating
1	2	3	4	Effective
100%	100%	100%	90%	

2.7 **Are Budget requests explicitly tied to accomplishment of the annual and long-term performance goals, and are the resource needs presented in a complete and transparent manner in the program's budget?** Answer: YES Question Weight: 9%

Explanation: Performance information is used by managers to inform decisions, and is incorporated into NSF's budget requests to the Congress. Independent external evaluations of the NNI have been conducted by high-level entities such as the National Academies and PCAST. The NNI then uses these expert assessments to inform broad management of federal investments in nanotechnology, of which NS&E plays the lead role. Major themes within the NS&E priority area are developed based upon these assessments. NSF's FY 2004 Congressional justification was built around the R&D Criteria, thereby highlighting specific performance information for NSF's investment portfolio, of which NS&E is part. The budget also clearly presents the resource request for each program and outlines the activities that will be supported with the funds. In addition, the FY 2004 Request provided full budgetary costing by the program framework in use at that time (Strategic Goals and Directorates). For the FY 2005 Budget, NSF will display the full budgetary cost associated with the new program framework defined in the Revised GPRA Strategic Plan.

Evidence: * FY 2004 Congressional Justification (http://www.nsf.gov/bfa/bud/fy2004/toc.htm). Full budgetary costing discussion begins on page 144. * Small Wonders, Endless Frontiers: A Review of the NNI; National Academies Press; 2002

2.8 **Has the program taken meaningful steps to correct its strategic planning deficiencies?** Answer: NA Question Weight: 0%

Explanation: No major strategic planning deficiencies have been identified. NS&E has identified ambitious long-term performance goals and is further refining its interim performance goals.

Evidence:

2.CA1 **Has the agency/program conducted a recent, meaningful, credible analysis of alternatives that includes trade-offs between cost, schedule, risk, and performance goals and used the results to guide the resulting activity?** Answer: YES Question Weight: 5%

Explanation: NSF supports major experimental facilities accessible to domestic and international researchers in nanoscale science and engineering. These include fully dedicated facilities such as the National Nanofabrication Users Network (NNUN), as well as facilities such as the National High Magnetic Field Laboratory, synchrotron radiation facilities and neutron facilities that support nanoscale research as well as other activities. NNUN was established in 1993 through an open solicitation. The merit review process assures that alternatives are considered, and the optimal mechanism selected. (The weight of this question was reduced, as only a fraction of the NS&E program is relevant to this capital assets question.)

Evidence: * Committee of Visitors reviews (internal documents): the National Nanofabrication Users Network * NSTC annual evaluation of NNI

2.RD1 **If applicable, does the program assess and compare the potential benefits of efforts within the program to other efforts that have similar goals?** Answer: YES Question Weight: 9%

Explanation: The NS&E Working Group, in collaboration with NSET, compares related efforts by other agencies, states and private industry on an ongoing basis. NSET ensures effective joint planning among federal agencies.

Evidence: * National Nanotechnology Initiative - The Initiative and its Implementation Plan; NSTC Committee on Technology; June 2002 * Workshops and grantees meetings (lists attached)

Program Assessment Rating Tool (PART)

Program:	Nanoscale Science and Engineering
Agency:	National Science Foundation
Bureau:	
Type(s):	Research and Development Competitive Grant Capital Assets and Service Acquisition

Section Scores				Overall Rating
1	2	3	4	Effective
100%	100%	100%	90%	

2.RD2 **Does the program use a prioritization process to guide budget requests and funding decisions?** Answer: YES Question Weight: 9%

Explanation: The prioritization process involves recommendations from each directorate with contribution to NSE; deliberative and collaborative evaluation by the NSE Group in NSF with input from community (outcomes from workshops and advisory committees), other agency contributions (NSET monthly meetings), external evaluations from entities such as the National Academies and PCAST; the recommendations are sent to NSF senior management for evaluation and approval.

Evidence: * NS&E Management Plan (internal document) * Small Wonders, Endless Frontiers: A Review of the NNI; National Academies Press; 2002

3.1 **Does the agency regularly collect timely and credible performance information, including information from key program partners, and use it to manage the program and improve performance?** Answer: YES Question Weight: 8%

Explanation: NS&E grant recipients are subject to reporting conditions, involving interim, annual, and final reports, and are specifically developed for continuing oversight and accountability measures. In addition, relevant NSF program managers conduct regular site visits, and NS&E awards are included in COV reviews. Quantitative goals are monitored, based on data in NSF's corporate systems. All of these assessments inform management practices.

Evidence: * Grantee interim, annual and final project reports (internal documents) * Site visit reports (internal documents) * Enterprise Information System (EIS) * Relevant NSF organizations' Committee of Visitors reviews (internal documents)

3.2 **Are Federal managers and program partners (including grantees, sub-grantees, contractors, cost-sharing partners, and other government partners) held accountable for cost, schedule and performance results?** Answer: YES Question Weight: 8%

Explanation: As mentioned in response 3.1, NS&E grantees must adhere to grant general conditions, pre-determined annual reporting requirements, and financial recordkeeping requirements. NS&E centers and collaborative awards are often subject to additional oversight activities, such as quarterly reporting requirements and site visits. In addition, NS&E facilities are subject to GPRA reporting requirements. Performance is monitored by cognizant NSF program officers, and funds can be withheld pending satisfactory project performance. The efforts of these program officers are reviewed by management and COVs. Corrective measures are undertaken as necessary to assure accountability.

Evidence: * Performance appraisals of NSF Program Officers * COV Reports * Awardee annual and final project reports * NSF Grant General Conditions (GC-1); April 2001 * GPRA Facilities Performance Reports

3.3 **Are funds (Federal and partners') obligated in a timely manner and spent for the intended purpose?** Answer: YES Question Weight: 8%

Explanation: NS&E funds are routinely obligated in a timely manner. A study conducted by Pricewaterhouse Cooper on NSF as a whole found no erroneous payments. NSF's grant monitoring activities assure that the funds are used for agreed to purposes.

Evidence: * NSF FY 2001 Risk Assessment for Erroneous Payments * Data on NSF Carryover, found in NSF's Budget Requests to Congress * Risk Assessment and Award Monitoring Guide * Clean opinion on NSF Financial statements for the past 5 years

Program:	Nanoscale Science and Engineering			**Section Scores**			**Overall Rating**
Agency:	National Science Foundation			1	2	3	4	Effective
Bureau:				100%	100%	100%	90%	
Type(s):	Research and Development	Competitive Grant	Capital Assets and Service Acquisition					

3.4 **Does the program have procedures (e.g. competitive sourcing/cost comparisons, IT improvements, appropriate incentives) to measure and achieve efficiencies and cost effectiveness in program execution?** Answer: YES Question Weight: 8%

Explanation: NSF is a leader in the vigorous and dynamic use of information technology to advance the agency mission. NS&E uses NSF's centralized systems, thereby benefiting from them. In addition, NS&E limits the number of proposals it invites from a single university for Nanoscale Science and Engineering Centers (NSECs) and Nanoscale Interdisciplinary Research Teams (NIRTs) in order to ensure higher success rates and maximize interdisciplinary collaboration within submitting universities. Such limits mean that many proposals have already faced a competitive process before they reach NSF, which tends to strengthen them while relieving administrative burden on NSF.

Evidence: * NSF Performance and Accountability Report, FY 2002 (http://www.nsf.gov/od/gpra/start.htm) * Nanoscale Science and Engineering (NSE) Program Solicitation for FY 2003 (NSF 02-148); July 2002

3.5 **Does the program collaborate and coordinate effectively with related programs?** Answer: YES Question Weight: 8%

Explanation: As mentioned in response 1.1, NS&E comprises NSF's participation in the National Nanotechnology Initiative (NNI); NSF is the lead of 17 participating agencies. NSF also promotes partnerships, including collaboration with other agencies, industry and national laboratories, for projects of mutual interest and international collaboration. Internally, NS&E is managed by a working group, with representation from all involved research Directorates.

Evidence: * NNI website (www.nano.gov) * NS&E Management Plan (internal document)

3.6 **Does the program use strong financial management practices?** Answer: YES Question Weight: 8%

Explanation: NS&E uses NSF's financial management system. NSF was the first agency to receive a 'green' rating for financial management in the President's Management Agenda, and NSF has received a clean opinion on its financial audit for the past five years. The NS&E priority area contributes to this outstanding assessment.

Evidence: * Executive Branch Management Scorecard * results of NSF financial audits

3.7 **Has the program taken meaningful steps to address its management deficiencies?** Answer: NA Question Weight: 0%

Explanation: NS&E has no identified management deficiencies.

Evidence:

3.CA1 **Is the program managed by maintaining clearly defined deliverables, capability/performance characteristics, and appropriate, credible cost and schedule goals?** Answer: YES Question Weight: 8%

Explanation: NS&E facilities are subject to the same reporting requirements and deliverables as all facilities funded at NSF. (90% of construction projects must keep negative schedule/cost variance to less than 10% of the project plan. 90% of operating facilities must keep operating time lost to less than 10%.) In addition, NS&E facilities undergo regular site visits, annual and final project reports.

Evidence: * GPRA performance plans and reports (http://www.nsf.gov/od/gpra/start.htm) * Relevant annual and final project reports; annual program reports

Program Assessment Rating Tool (PART)

Program:	Nanoscale Science and Engineering
Agency:	National Science Foundation
Bureau:	
Type(s):	Research and Development Competitive Grant Capital Assets and Service Acquisition

Section Scores				Overall Rating
1	2	3	4	Effective
100%	100%	100%	90%	

3.CO1 **Are grants awarded based on a clear competitive process that includes a qualified assessment of merit?** Answer: YES Question Weight: 20%

Explanation: The NS&E funding process is conducted in two phases. First, proposals are subject to NSF merit review. Proposals selected from this process are then assessed by the internal NS&E working group, with representation from all involved research Directorates. The latter step maximizes broad disciplinary representation, and ensures funds are directed to the most promising emerging nanotechnology themes. (The weight of this question has been increased to reflect the importance of external merit review in validating the quality of this basic research program.)

Evidence: * NS&E Management Plan (internal document) * Enterprise Information System (EIS) * Performance and Accountability Reports

3.CO2 **Does the program have oversight practices that provide sufficient knowledge of grantee activities?** Answer: YES Question Weight: 8%

Explanation: NS&E conducts an annual grantees workshop to highlight major accomplishments. NSF conducts sites visits and evaluations for the Engineering Research Centers, the Nanobiotechnology Science and Technology Center, Nanoscale Science and Engineering Centers, and the NNUN. In FY 2002 NSF established a formal Award Monitoring and Technical Assistance Program (AM&TAP) based on financial and administrative risk assessment of NSF awardee institutions and with a primary focus to on-site monitoring. Consistent with NSF's existing award administration process, AM&TAP is a collaborative effort between administrative and financial managers/technical staff and NSF program managers. Expenditures are tracked to verify that funds are used for their designated purposes. Also, to leverage its staff resources, NSF has increased the number of reverse site visits, since they are especially effective in providing technical assistance to new and other high risk awardees.

Evidence: * Workshops and grantees meetings (list attached). * Annual and final project reports * Site visit reports * OIG clean audit opinions * PMA 'Green Light' in Financial Management

3.CO3 **Does the program collect grantee performance data on an annual basis and make it available to the public in a transparent and meaningful manner?** Answer: YES Question Weight: 8%

Explanation: NSF's Grant General Conditions (GGC) require that results of NSF-supported research be published in open literature, and that NSF support is appropriately referenced/cited. In addition, NS&E organizes an annual grantees meeting and the summaries and highlights are published on the website and in print . Selected research and education highlights are collected each year, and made public on the websites (www.nsf.gov/nano). In addition there are program reviews of the key contributing programs at grantees meetings.

Evidence: * GC-1 (Grant General Conditions) * Highlights of annual meetings are available at: http://www.nsf.gov/nano, section Program Reviews; FY 2001: http://www-unix.oit.umass.edu/%7Enano/index2001.html; FY 2002: http://www-unix.oit.umass.edu/%7Enano/ * NSF Performance and Accountability Report, FY 2002 (http://www.nsf.gov/od/gpra/start.htm) * Program reviews at grantees meetings include: - Nanomanufacturing Grand Challenge in Manufacturing at Nanoscale NSF-Arlington, VA - May 13, 2002; - NSF Workshop in 3D Nanomanufacturing Partnering with Industry, Birmingham, AL - Jan. 5-6, 2003 (www.nano.neu.edu/nsf_workshop.html); - MRSEC network meeting and website; - SBIR (Small Businesses Move to Nanotechnology, NSF-Arlington, VA - March 20-21, 2002, www.eng.nsf.gov/sbir).

Program Assessment Rating Tool (PART)

Program: Nanoscale Science and Engineering
Agency: National Science Foundation
Bureau:
Type(s): Research and Development | Competitive Grant | Capital Assets and Service Acquisition

Section Scores				Overall Rating
1	2	3	4	Effective
100%	100%	100%	90%	

3.RD1 **For R&D programs other than competitive grants programs, does the program allocate funds and use management processes that maintain program quality?**
Answer: NA | Question Weight: 0%

Explanation: NS&E is a competitive grants program.

Evidence:

4.1 **Has the program demonstrated adequate progress in achieving its long-term performance goals?**
Answer: LARGE EXTENT | Question Weight: 10%

Explanation: A number of important discoveries and their applications of nanoscale materials and devices that are impacting the economy or close to commercialization can be tied to NNI, for which NSF plays the lead federal role. NNI has promoted increased business investment in nanoscale science and engineering for the support of startup companies and for the development of tools, applications and innovations that use nanoscale science and engineering. Related to NS&E's infrastructure goals, academic-based computational infrastructure has been established, and expanded for experimental facilities. NNI has also led to increased core industrial competence in nanotechnology in the U.S. Results within the NS&E priority area have been validated by existing Committees of Visitors (COVs), and an NS&E-wide COV is planned for FY 2004. Finally, annual and final project reports provide regular discussion of progress toward NS&E goals. (The weight of this question was decreased as NS&E is still early in its development with respect to its long-term research outcomes.)

Evidence: * Small Wonders, Endless Frontiers: A Review of the NNI; National Academies Press; 2002 * Examples of NS&E-supported research can be found at the Nanobusiness alliance website (http://www.nanobusiness.org/) * Examples of NS&E-supported research can be found at the Small Times website (http://www.smalltimes.com/) * The NNI Implementation Plan discusses outcomes from NS&E awards * Annual and final project reports, including NNUN and NCN reports * Annual NSEC reviews

4.2 **Does the program (including program partners) achieve its annual performance goals?**
Answer: SMALL EXTENT | Question Weight: 10%

Explanation: NS&E is a relatively young, robust priority area at NSF, for which internal assessment tools (such as an NS&E-wide COV) are under development. Contributing theme elements, such as nanomanufacturing, MRSECs and NSECs, are evaluated periodically by COVs. Finally, individual awards are evaluated annually through requisite annual project reports, and continued funding of these is contingent upon successful progress. (The weight of this question was decreased as NS&E is still early in its development with respect to its long-term research outcomes.)

Evidence: * Annual program reports * Annual and final project reports * Small Wonders, Endless Frontiers: A Review of the NNI; National Academies Press; 2002

4.3 **Does the program demonstrate improved efficiencies or cost effectiveness in achieving program goals each year?**
Answer: YES | Question Weight: 18%

Explanation: As discussed in Question 3.4, NSF is a leader in the vigorous and dynamic use of information technology to advance the agency mission. IT improvements have eliminated grantee mailing costs, significantly reduced printing costs and permitted more timely and efficient processing of proposals. In addition, since NS&E limits the number of proposals it will accept from a single institution, NIRTs and NSECs have demonstrated higher success rates and more interdisciplinary collaboration within submitting universities than would otherwise be possible.

Evidence: * NSF Performance and Accountability Report, FY 2002 (http://www.nsf.gov/od/gpra/start.htm) * Nanoscale Science and Engineering (NSE) Program Solicitation for FY 2003 (NSF 02-148); July 2002

Program Assessment Rating Tool (PART)

Program: Nanoscale Science and Engineering
Agency: National Science Foundation
Bureau:
Type(s): Research and Development Competitive Grant Capital Assets and Service Acquisition

Section Scores				Overall Rating
1	2	3	4	Effective
100%	100%	100%	90%	

4.4 Does the performance of this program compare favorably to other programs, including government, private, etc., with similar purpose and goals? Answer: YES Question Weight: 18%

Explanation: As discussed in Question 1.1, NS&E is NSF's participation in the National Nanotechnology Initiative (NNI), and NSF's participation is pivotal to the success of the overall program goals. A number of external evaluation entities have assessed NS&E in this context, and affirmed progress toward NS&E's goals.

Evidence: * Small Wonders, Endless Frontiers: A Review of the NNI; National Academies Press; 2002

4.5 Do independent evaluations of sufficient scope and quality indicate that the program is effective and achieving results? Answer: YES Question Weight: 25%

Explanation: Independent external evaluations of the NNI have been conducted by high-level entities such as the National Academies and PCAST. These have indicated the program's effectiveness. A number of external evaluation entities have assessed NS&E in this context, and affirmed progress toward NS&E's goals. (The weight of this question has been increased to reflect the importance of independent evaluations in assessing effectiveness of basic research programs.)

Evidence: * Small Wonders, Endless Frontiers: A Review of the NNI; National Academies Press; 2002 * Examples of NS&E-supported research can be found at the Nanobusiness alliance website (http://www.nanobusiness.org/) * Examples of NS&E-supported research can be found at the Small Times website (http://www.smalltimes.com/) * Annual and final project reports * Annual NSEC reviews

4.CA1 Were program goals achieved within budgeted costs and established schedules? Answer: YES Question Weight: 18%

Explanation: As reported through requirements identified in Section 3.CA1, the NNUN facility did achieve its objectives within budgeted costs and established schedules.

Evidence: * NNUN COV

PART Performance Measurements

Program: Nanoscale Science and Engineering

Agency: National Science Foundation

Bureau:

Measure: Qualitative assessment by external experts that program is responsible for a broad-based and capable interdisciplinary research community that advances fundamental nanotechnology knowledge, with impact on other disciplinary fields.

Additional Information: Relates to three objectives, as listed in the NSF GPRA Strategic Plan: "encouraging collaborative research and education efforts..."; "...accelerating progress in selected S&E areas of high priority..."; and "...increasing opportunities for underrepresented individuals..."Results within the NS&E priority area have been validated by existing Committees of Visitors (COVs).

Year	Target	Actual	**Measure Term:** Long-term
2004	On-track		
2007	On-track		
2010	Success		

Measure: Percent of proposals that are multi-investigator proposals.

Additional Information: All proposals received as a result of the NS&E solicitation. NS&E strives to foster collaborations among investigators that may not have otherwise occurred.

Year	Target	Actual	**Measure Term:** Annual
2001		75%	
2002		75%	
2003		73%	
2004	75%		
2005	75%		

Measure: As qualitatively evaluated by external experts, the successful development of a knowledge base for systematic control of matter at the nanoscale that will enable the next industrial revolution for the benefit of society.

Additional Information: Relates to at least one priority area objective in the NSF GPRA Strategic Plan: "Foster connections between discoveries and their use in the service of society."

Year	Target	Actual	**Measure Term:** Long-term
2004	On-track		
2007	On-track		

PART Performance Measurements

Program: Nanoscale Science and Engineering

Agency: National Science Foundation

Bureau:

Measure: As qualitatively evaluated by external experts, the successful development of a knowledge base for systematic control of matter at the nanoscale that will enable the next industrial revolution for the benefit of society.

Additional Information: Relates to at least one priority area objective in the NSF GPRA Strategic Plan: "Foster connections between discoveries and their use in the service of society."

Year	Target	Actual	**Measure Term:** Long-term
2010	Success		

Measure: Average annualized new research grant award size (in dollars) within NS&E solicitation. This measure promotes increasing award size, rather than supporting a greater number of smaller grants, which helps improve the efficiency of researcher time.

Additional Information: Larger award sizes allow the research community to spend more time conducting research, and less time preparing multiple proposals to accomplish a research goal. An average annualized award size of $330,000 is an ambitious target; significantly greater than NSF's current average annualized award size of $115,000, and even larger than NSF's long-term goal of $250,000.

Year	Target	Actual	**Measure Term:** Annual
2001		$362,705	
2002		$323,000	
2003	$330,000	$315,000	
2004	$330,000		
2005	$330,000		

Measure: Average duration (in years) of new research grant awards within Nanoscale Science and Engineering solicitation.

Additional Information: Longer award durations allow the research community to spend more time conducting research, and less time preparing proposals to continue funding ongoing projects. An average award duration of 3.8 years is an ambitious target; significantly greater than NSF's current average duration of 3.0 years.

Year	Target	Actual	**Measure Term:** Annual (Efficiency Measure)
2001		4	
2002		3.7	
2003	3.8	3.8	
2004	3.8		

PART Performance Measurements

Program: Nanoscale Science and Engineering

Agency: National Science Foundation

Bureau:

Measure: Average duration (in years) of new research grant awards within Nanoscale Science and Engineering solicitation.

Additional Information: Longer award durations allow the research community to spend more time conducting research, and less time preparing proposals to continue funding ongoing projects. An average award duration of 3.8 years is an ambitious target; significantly greater than NSF's current average duration of 3.0 years.

Year	Target	Actual	**Measure Term:**	Annual	(Efficiency Measure)
2005	3.8				

Measure: External advisory committee finding of that research infrastructure is appropriate to enable major discoveries.

Additional Information: Relates to all priority area objectives in NSF GPRA Strategic Plan.

Year	Target	Actual	**Measure Term:**	Long-term
2004	On-track			
2007	On-track			
2010	Success			

Measure: Number of users accessing National Nanofabrication Users Network/National Nanotechnology Infrastructure Network (NNUN/NNIN) and Network for Computational Nanotechnology (NCN) sites.

Additional Information: An indicator of access to infrastructure. Estimates are based upon current budget estimates.

Year	Target	Actual	**Measure Term:**	Annual
2001		1,300		
2002		1,700		
2003	3,000	3,000		
2004	4,000			
2005	4,000			
2006	4,500			
2007	5,000			

PART Performance Measurements

Program: Nanoscale Science and Engineering

Agency: National Science Foundation

Bureau:

Measure: Number of nodes that comprise infrastructure.

Additional Information: An indicator of program maintaining and enhancing infrastructure. NNIN nodes are defined as both large and small individual user facilities, geographically distributed and with diverse and complementary capabilities to design, create, characterize, and measure novel nanoscale structures, materials, devices, and systems.

Year	Target	Actual	**Measure Term:** Annual
2001		5	
2002		5	
2003	12	12	
2004	14		
2005	14		
2006	17		
2007	20		

Measure: Successful development of workforce, as qualitatively evaluated by external experts.

Additional Information: An interdisciplinary workforce for nanotechnology to meet industry's future needs. Relates to two priority area objectives in NSF GPRA Strategic Plan: "providing people with new skills and perspectives" and "increasing opportunities for underrepresented individuals and insitutions..."

Year	Target	Actual	**Measure Term:** Long-term
2004	On-track		
2007	On-track		
2010	Success		

Measure: Percent of proposals with at least one female PI or Co-PI.

Additional Information: All proposals received as a result of the NS&E solicitation. While there were no past targets in this area, NSF has shown a continued commitment to increasing participation of female investigators.

Year	Target	Actual	**Measure Term:** Annual
2001		25%	

PART Performance Measurements

Program: Nanoscale Science and Engineering

Agency: National Science Foundation

Bureau:

Measure: Percent of proposals with at least one female PI or Co-PI.

Additional Information: All proposals received as a result of the NS&E solicitation. While there were no past targets in this area, NSF has shown a continued commitment to increasing participation of female investigators.

Year	Target	Actual
2002		25%
2003		22%
2004	25%	
2005	25%	

Measure Term: Annual

Measure: Percent of proposals with at least one minority PI or Co-PI.

Additional Information: All proposals received as a result of the NS&E solicitation. While there were no past targets in this area, NSF has shown a continued commitment to increasing participation of investigators from underrepresented minority groups.

Year	Target	Actual
2001		10%
2002		10%
2003		13%
2004	13%	
2005	13%	

Measure Term: Annual