
NSF Centers

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For the

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NSF Centers: In State of the Union Address

“ I am proposing that we double over five years the budget of the National Science Foundation. My Administration will establish a number of ‘science and technology centers’ based at U.S. universities. These centers will focus on fundamental science that has the potential to contribute to our Nation’s economic competitiveness . . . ”

Ronald Reagan, January 27,1987.



Definition, NSB

“Research Center – An organized academic research activity that receives budgetary support from sources independent of departmental allocations; occupies space with access to university operated physical facilities and support services; is directed by an administrator drawn from faculty ranks; participates in the institution’s educational function, but is not degree-granting; and is more than a facilitator of research.”



General Rationale from the NSB

- Exploit opportunities in science where the complexity of the research problem can benefit from the sustained interaction among disciplines and/or subdisciplines.
- Stimulation of new directions and styles of inquiry in research including collaborative, cross-disciplinary, and interdisciplinary approaches.
- Provision of experimental facilities, professional staff, technical and support services, and related infrastructural support.
- Conducting research that is impossible or unfeasible under traditional support such as research on large systems, centered on a major experimental capability, or requiring extensive regional coordination.
- Assistance to the educational programs of the institution including research training and exposure to multidisciplinary approaches.
- Enhancement of the visibility of the activity to provide a focus for interactions with the academic communities, industrial interests, and national or local government agencies.
- Response to an identified national concern or the furtherance of specific national goals and priorities.

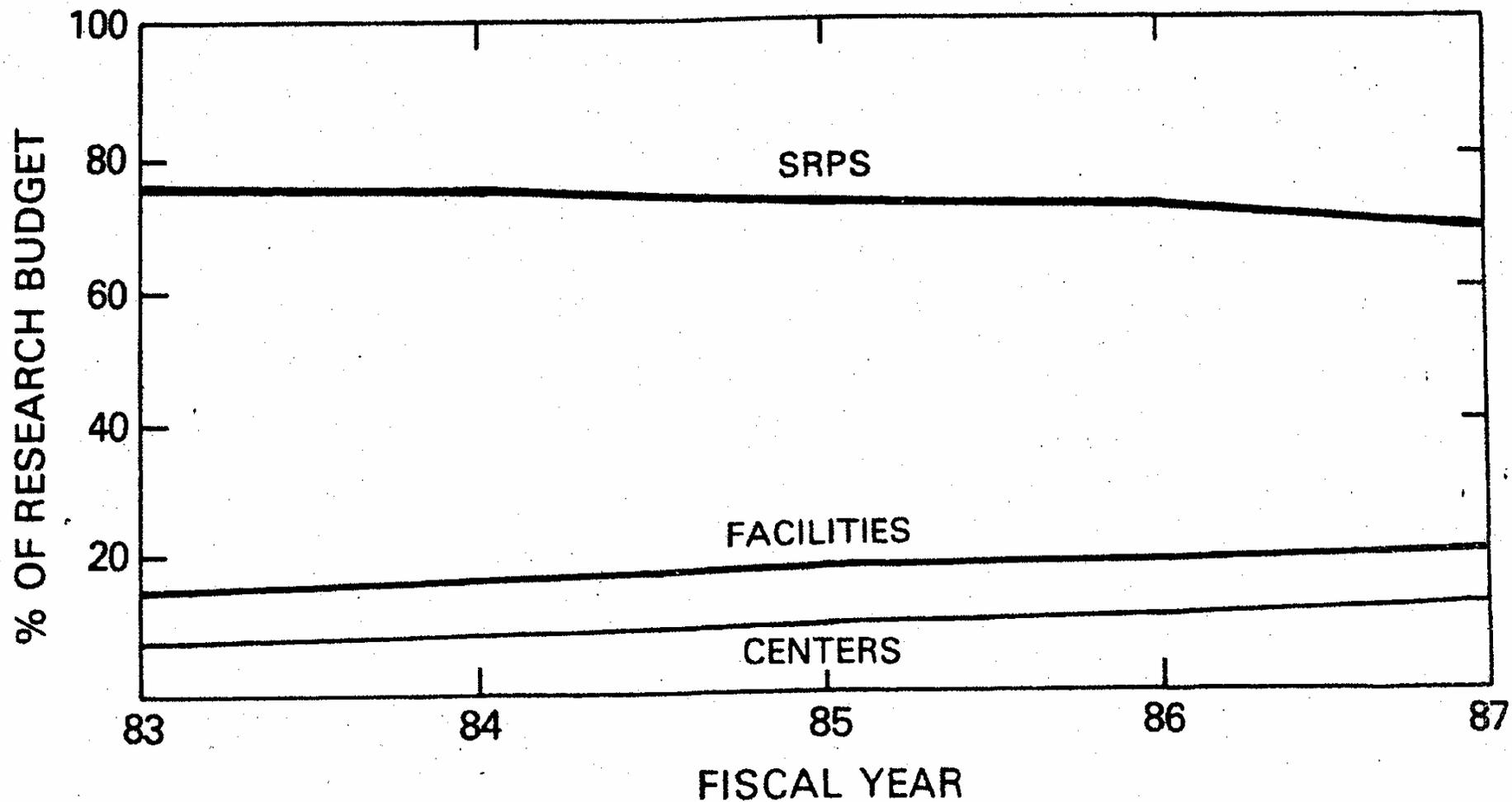


NSF Centers: Distinguishing Features

- **Complex research and education activities – scope, scale, duration, equipment**
- **Ambitious, transformative, and risky research agenda**
- **Disciplinary / interdisciplinary**
- **Integrative approaches, especially in learning, discovery, and innovation**
- **Leadership in strategies to increase diversity**
- **S&E in service to society, including workforce development, innovative technologies and instrumentation**
- **Alignment with NSF mission and strategic goals**
- **Strong partners and organizational linkages, including international**
- **Planned phase-out of NSF support after 10-11 years**
- **Legacy - people and ideas**



Balance Among SRPS, Facilities, Centers FY 1983-87

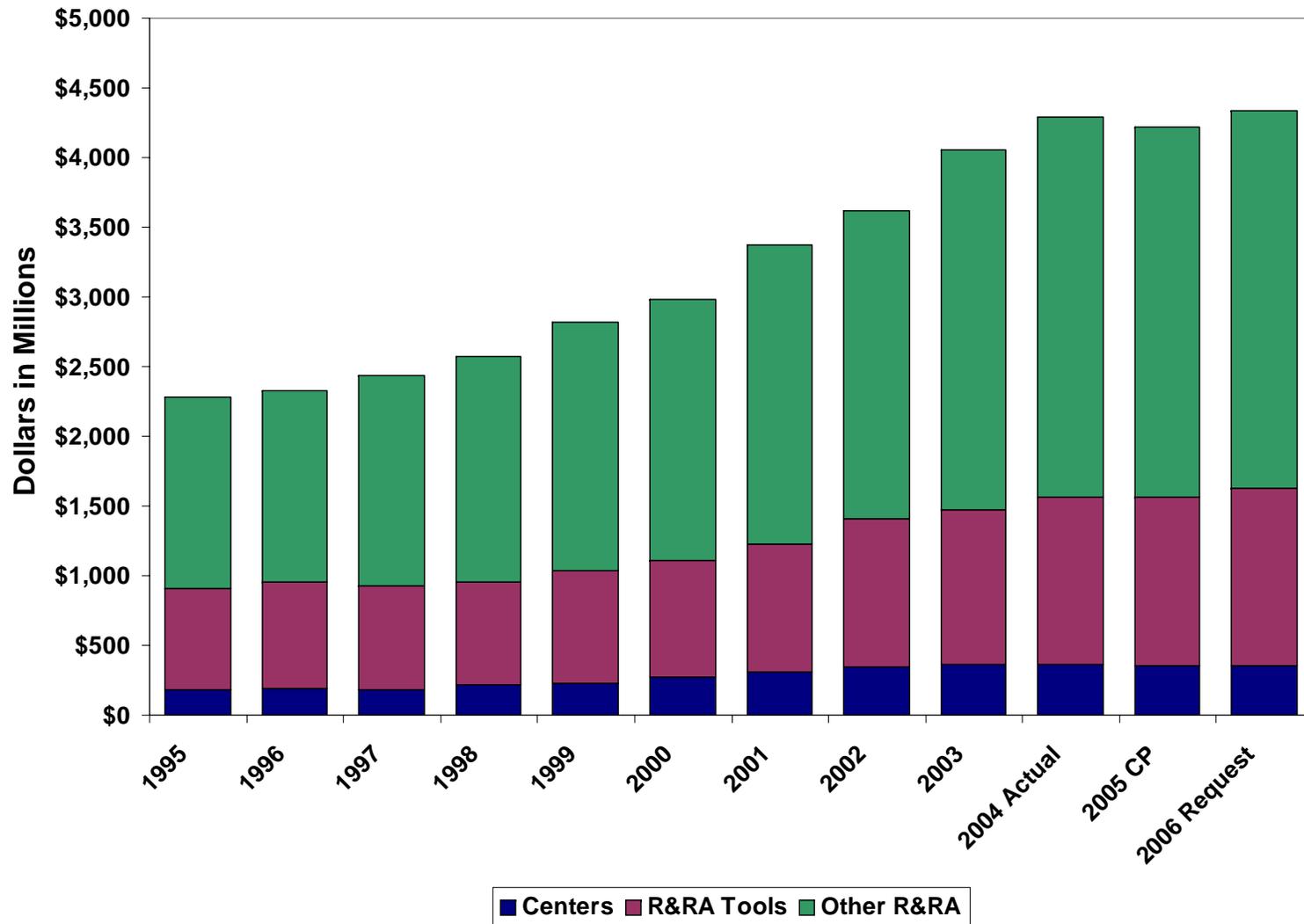


NSF Centers: % of Total NSF Funding

	<u>“Guidance”</u>	<u>FY 2005 Enacted</u>	<u>FY 2006 Request</u>
People	n/a	19%	17%
Ideas	n/a	50%	49%
– <i>Centers</i>	<i>8 - 12%</i>	<i>6%</i>	<i>6%</i>
Tools	22 - 27%	26%	27%
Org. Exc.	5 - 7%	5%	6%



NSF Centers: Portion of R&RA



NSF Centers: Funding

- **Large centers programs that provide annual project support at average levels of \$3 M to \$ 5 M include the ERC (19), STC (11), and Science of Learning Centers (SLC-3) programs**
- **Other formally structured centers activities that provide annual project support at average levels of \$ 1M to \$2.5 M include the MRSEC (35), NSEC (14), and Physics Frontiers Centers (10) programs**
- **Examples of programs that support research and education, and intellectual activities beyond facilitation of research, include the LTER (26) and Plant Genome Virtual Centers (25) programs**
- **“ ... demands of subject matter drive size and cost of center” (Zare report)**
- **“ ... funding ... strongly bears on scope and quality” (NAE report)**
- **Scope, size and cost drive complexity of management activities**



Sunsetting Centers, NSB

“The Foundation balances continuity with change by perceiving and responding positively to changing trends and opportunities in the conduct of research and education in ways that assure the introduction of new people, ideas, and approaches for the future.”



Lee Hood receiving Pioneer Award in Science and Technology



Focus of NSF Programs, NSB

“The Foundation must both continue to support academic research through grants to individual investigators and to support centers and large facilities when it is clear that there is added value in doing so.”



Center Oversight

- **Review**
- **Evaluation**
- **Management**





President's Executive Order, 1987

The NSF “response rests on developing human resources and broadening participation in science and engineering; strengthening basic disciplinary research programs and improving the facilities that support them; and establishing Science and Technology Centers and groups to enhance economic competitiveness in areas such as biology and biotechnology, social and behavioral sciences, computer and information sciences, and materials science.”

NSB Report on Centers, 1988



NSF Centers, NSB

“This mode of research support is intended to enhance research activity in an intellectual field ... by providing resources in a planned, organized, and focused way.” (NSB – 88-35)



NSF Centers: Portfolio Characteristics

- **Approximately 200 “NSF Centers” supported in FY 2004**
- **Based at universities to leverage established research/education linkages**
- **Variety of configurations - lead university with small number of core partners, consortia, virtual centers**
- **Diverse partnerships - academic institutions, national labs, industrial organizations, other public/ private entities**
- **Number of people who utilized center facilities exceeded 20,000 in FY 2004**
- **High levels of integration among research, education and knowledge/technology transfer activities**



NSF Centers: Supported in FY 2004

- **Centers for Analysis and Synthesis**
- **Chemistry Centers**
- **Earthquake Engineering Research Centers**
- **Engineering Research Centers**
- **Long-Term Ecological Research Program**
- **Materials Centers**
- **Mathematical Sciences Research Institutes**
- **Nanoscale Science and Engineering Centers**
- **Physics Frontiers Centers**
- **Plant Genome Virtual Centers**
- **Science and Technology Centers**
- **Science of Learning Centers**
- **SBE Centers**



Balance Among SRPS, Facilities, Centers FY 1983-87

