

National Science Board
Guidelines for
Setting Priority for Major Research Facilities

The advancement of research and education in all fields of science and engineering depends – at some times – on equipment that permits observation and experimentation. Therefore, the National Science Foundation (NSF) funds such equipment. It also funds the research necessary to advance the engineering of next generation instruments that may enable entirely new and improved modalities of observation and experimentation.

Some of the equipment that enables the advancement of research is large, complex, and costly. The term *facility* is used to describe such equipment, because typically the equipment requires special sites or buildings to house it and a dedicated staff to effectively maintain and use the equipment. Multiple experimental researchers working in related disciplines share the use of such large facilities.

From time to time, a consensus arises within a research community that a particular new facility is required to advance the state of knowledge in the field. Such a consensus matures through broad community discussion. Through that discussion, a consortium sometimes arises from the community to take the responsibility to build and operate the facility for the good of the entire community. In all cases there are clearly stated research questions that only the unique, envisioned facility could help answer.

The National Science Board approves all large facility projects, as directed by the NSF Act of 1950 and based on the Board's revised delegation of authority to the Director (NSB-99-198, Appendix B, "Delegation of Authority," 335 NSB Meeting, November 18, 1999). When considering a facility project for approval, the Board reviews the need for such a facility, the research that will be enabled, readiness of plans for construction and operation, construction budget estimates, and operations budget estimates. Construction of many facilities is funded through the NSF Major Research Equipment and Facilities Construction account.

Due to cost, not all facilities can be built at the time that their need is determined and plans are in order for construction. Some priority order on facility construction projects must be set.

The guidelines observed by the Board in approving such major facility projects and in approving the NSF budget submission are:

- Once project construction commences, highest priority is given to moving a project forward through multiple years of construction in a cost-effective way, as determined by sound engineering and as long as progress is appropriate. It is most cost-effective to complete initiated projects in a timely way, rather than to commence new projects at the cost of stretching out in-progress construction.

- New candidate projects will be considered from the point of view of broadly serving the many disciplines supported by NSF.
- Multiple projects for a single discipline, or for closely related disciplines, will be ordered based on a judgment of the contribution that they will make toward the advancement of research in those related fields. Community judgment on this matter is considered.
- Projects will be authorized close to the time that funding requests are expected to be made.
- International and interagency commitments are considered in setting priorities among projects.

The above are guidelines. Each facility consideration involves many complex issues. The Board will consider all relevant matters, and could deviate from these guidelines, given sound reasons to do so.