Opportunity Growth and Security Initiative

National Science Foundation

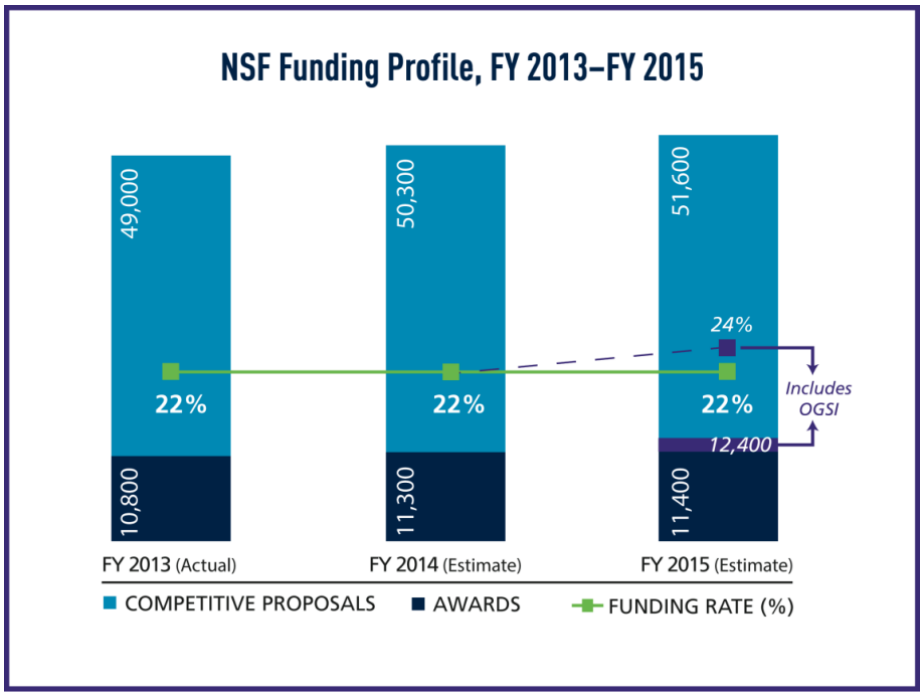
The Administration's Opportunity, Growth, and Security Initiative (OGSI) includes $552.0 million for NSF, recognizing that additional investment in FY 2015 can spur economic progress, promote opportunity, and strengthen national security.

This additional funding relates directly to NSF's underlying mission of supporting all fields of basic science and engineering and keeping the Nation's scientific enterprise focused on the furthest frontiers of knowledge. NSF's investments in research, education, and infrastructure strongly advance the creation of new knowledge and promote prosperity through job creation and technological innovation. The additional funding provided through this initiative will accelerate progress in broad areas of science and engineering that address clearly defined national priorities, such as advanced manufacturing, clean energy, cybersecurity, neuroscience, and STEM workforce development.

FY 2015 NSF Funding

(Dollars in Millions)

NSF FY 2015 Budget Request	$7,255.00
Opportunity, Growth, and Security Initiative	552.00



Investment Strategy

NSF will invest this additional funding using a strategy that reflects the agency's longstanding contribution to the Nation.

First, the additional funding will ensure strong support for the core activities that transform the frontiers of learning and discovery. As shown in the table above, in FY 2015, NSF expects to evaluate over 51,600 proposals through a competitive merit review process and make over 11,400 new awards, for a funding rate of 22 percent. Additional OGSI funding will allow for an estimated 1,000 additional standard awards to be made from a pool of highly-rated proposals that will otherwise be declined for lack of funding, and would bring NSF's FY 2015 success rate from an estimated 22 percent to 24 percent. These new awards would impact approximately 11,700 additional people, including senior researchers, postdocs, graduate and undergraduate students, and K-12 students and teachers.

Second, because NSF has long recognized the importance of connecting advances in fundamental research and education to pressing national challenges, funding provided through this initiative will strengthen support for the agency's priority investments for FY 2015, including Cognitive Science and Neuroscience; Cyber-enabled Materials, Manufacturing, and Smart Systems (CEMMSS); Clean Energy; climate change research; NSF Research Traineeships (NRT); and Secure and Trustworthy Cyberspace (SaTC).

Third, it will support path-breaking efforts to improve the Nation's STEM workforce. In particular, the initiative will provide additional traineeship opportunities for roughly 3,000 graduate students over the next five years through the NSF Research Traineeship program (NRT). It also strengthens NSF's investment in the CyberCorps: Scholarships for Service (SFS) program.

This additional investment would achieve an appropriate balance of activities in keeping with NSF's overall portfolio. This includes support both for the conduct of research and for the tools, instruments, and underlying capabilities necessary to advance learning and discovery across the spectrum of science and engineering. Furthermore, by providing multi-year funding, through standard grants, for activities supported through this initiative, this additional funding will relieve – and not create – pressure on future budgets in the form of continuing requirements.

Additional Investment Areas

Sustained funding for core science and engineering research has been proven over the past decades to be critical to developing the innovations of tomorrow. NSF-funded core research has produced breakthroughs in areas such as lasers, advanced manufacturing, Internet protocols, and automated systems, which have in turn improved health care, automotive safety, communications, and many other technologies that impact our daily lives.

In FY 2015, the NSF budget continues to represent a thoughtful and strategic balance between core research and other activities that address fields of emerging scientific importance and of clearly identified national priorities. Thus, in addition to bolstering NSF's core research programs, a portion of the OGSI funds will support established priority investments, in particular those included in the NSF-wide Investments chapter.

Additional OGSI funding will help support continued achievements in science and engineering research, such as the following:

- **Clean Energy:** In June 2013, researchers at Penn State discovered that an important chemical reaction that generates hydrogen from water is effectively triggered—or catalyzed—by a nanoparticle composed of nickel and phosphorus, two inexpensive elements that are abundant on Earth. Cheaper clean energy technologies could be made possible because of this discovery.

- **Cognitive Science and Neuroscience:** One of the inventors of a new research tool called optogenetics uses light pulses to control neurons in the brain in order to identify their functions and their role in diseases. Researchers hope optogenetics will reveal how a healthy brain works but also track areas of the brain responsible for disorders and diseases, such as autism, post-traumatic stress disorder, and epilepsy. This tool could identify new targets for drug therapy and deep brain stimulation.

- **Cyber-Enabled Materials, Manufacturing, and Smart Systems:** While 3-D pens and printers are enjoyed by students, artists and other creative people, innovative American companies are using similar equipment to manufacture aerospace, automotive, and medical technologies. The number of technologies customized and created using additive engineering process is growing each year.

- **NSF Research Traineeships:** Researchers at the University of Illinois, Chicago, including an IGERT student, found that native woodpeckers may slow and ultimately control the spread of a pest called the emerald ash borer, which is native to Asia. The emerald ash borer has been feeding on trees in southeastern Michigan for more than a decade and is responsible for the death of 30 million trees in the northeastern US and Canada. The researchers tracked the movement of the emerald ash borer using a citizen science database called the Project FeederWatch, which revealed that the woodpecker and other foraging birds increased in regions where the emerald ash borer had invaded, giving researchers insight into how to slow the further spread of the best.