

2011 TECHNICAL TOPIC DESCRIPTIONS

ENERGY EFFICIENCY AND RENEWABLE ENERGY

1. Advanced Cooling and Waste Heat Recovery Technologies
2. Production of Bioenergy and Biofuels from Cellulosic and Non-Food Biomass
3. Hydrogen and Fuel Cells
4. Energy Saving Technologies for Commodity Manufacturing industries
5. Innovative Solar Power: Lowering the Cost of Novel Photovoltaics, Solar Designs for Desalination, and Distributed Concentrating Solar Power
6. Advanced Water Power Technology Development
7. Wind Energy Technology Development
8. Advanced Technology Applications for Buildings

BASIC ENERGY SCIENCES

9. Energy Efficient Membranes for industrial Applications
10. Technologies Related to Energy Storage for Electric Drive Vehicles
11. Instrumentation for Advanced Chemical Imaging
12. Technology to Support Bes User Facilities
13. Radio Frequency (Rf) Devices and Components for Accelerator Facilities
14. Advanced Sources for Accelerator Facilities
15. Ancillary Technologies for Accelerator Facilities
16. Instrumentation for Electron Microscopy and Scanning Probe Microscopy
17. Instrumentation for Materials Research Using Ultra-Bright or Ultra-Fast X-Ray Sources
18. Instrumentation and Tools for Materials Research Using Neutron Scattering
19. Novel Membrane and Electrolyte Development for Redox Flow Batteries
20. High Performance Materials for Nuclear Application
21. Advanced Coal Research

FOSSIL ENERGY

22. Advanced Fossil Energy Research
23. Climate Control Technologies for Fossil Energy Applications
24. Coal Gasification Technologies
25. Technologies for Clean Fuels and Hydrogen from Coal
26. Advanced Turbine Technology for IGCC Power Plants
27. Fuel Cell Technologies for Central Power Generation with Coal
28. Oil and Gas Technologies

BIOLOGICAL AND ENVIRONMENTAL RESEARCH

29. Carbon Cycle Measurements of the Atmosphere and the Biosphere
30. Enhanced Availability of Climate Model Output
31. Atmospheric Measurement Technology
32. Technologies for Subsurface Characterization and Monitoring
33. Imaging and Radiochemistry
34. Genomic Science and Related Biotechnologies

ADVANCED SCIENTIFIC COMPUTING RESEARCH

35. Smart Facilities and Green Networks
36. Cloud Computing
37. Data Management and Storage
38. Modeling and Simulation of industrially-Relevant Problems

ADVANCED SCIENTIFIC COMPUTING RESEARCH (CONTINUED)

39. 100 GigE Networking Components
40. High Performance Computing Systems
41. Collaboration, Scientific Visualization, and Data Understanding

NUCLEAR PHYSICS

42. Nuclear Physics Software and Data Management
43. Nuclear Physics Electronics Design and Fabrication
44. Nuclear Physics Accelerator Technology
45. Nuclear Physics Instrumentation, Detection Systems, and Techniques
46. Nuclear Physics Isotope Science and Technology

ENVIRONMENTAL MANAGEMENT

47. Deactivation and Decommissioning
48. In Situ Remediation
49. Novel Monitoring Concepts

DEFENSE NUCLEAR NONPROLIFERATION

50. Remote Sensing
51. Radiation Detection
52. Global Nuclear Safeguards Research and Development
53. Advanced Simulation, Algorithms and Modeling
54. Nuclear Detonation Detection
55. Radionuclide Monitoring for Nuclear Explosions
56. Compact Seismo-Acoustic Monitoring System
57. Advanced Separations Chemistry Tools

NUCLEAR ENERGY, SCIENCE, AND TECHNOLOGY

58. Advanced Technologies for Nuclear Energy

R&D KNOWLEDGE DIFFUSION

59. Search, Discovery, and Communication of Scientific and Technical Knowledge in Distributed Systems

HIGH ENERGY PHYSICS

60. Advanced Concepts and Technology for High intensity Accelerators
61. High-Speed Electronic Instrumentation for Data Acquisition and Processing
62. High Energy Physics Computer Technology
63. High Energy Physics Detectors
64. High-Field Superconductor and Superconducting Magnet Technologies for High Energy Particle Colliders
65. Accelerator Technology for the international Linear Collider
66. Advanced Concepts and Technology for High Energy Accelerators
67. Radio Frequency Accelerator Technology for High Energy Accelerators and Colliders

Fusion Energy Sciences

68. Advanced Technologies and Materials for Fusion Energy Systems
69. Fusion Science and Technology
70. High Energy Density Plasmas and inertial Fusion Energy

Electricity Delivery and Energy Reliability

71. Flywheel Energy Storage



U.S. DEPARTMENT OF
ENERGY

SBIR

Small Business Innovation Research

&

STTR

Small Business Technology Transfer

PROGRAMS

A 1982 study found that small businesses had 2.5 times as many innovations per employee as large businesses, while large businesses were nearly three times as likely to receive government assistance. As a result, the SBIR program was established by an act of Congress to provide funding opportunity to stimulate small business, technological innovation to meet Federal agency Research and Development (R&D) needs. After more than a decade of Small Business success with SBIR, the STTR program was enacted to encourage and support small business access and collaboration with non-profit research institutions, including National laboratories.

FREQUENTLY ASKED QUESTIONS:

What are SBIR and STTR?

Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) are U. S. Government programs in which Federal agencies with large research and development budgets “set-aside” a small fraction of their funding for competitions among small businesses only. Small businesses that win awards in these two programs keep the rights to any technology developed and are encouraged to commercialize the technology.

How Much Money is Set-Aside?

Each year, the participating SBIR-STTR Federal agencies set-aside 2.5% for SBIR and 0.3% of their R&D budgets. In Fiscal Year 2010, these set-asides corresponded to \$150 Million and \$18 Million respectively.

How Do These Programs Work at DOE?

Each September, DOE issues a solicitation inviting small businesses to apply for its SBIR/STTR Phase I grants. This solicitation describes the Technical Topics in such R&D areas as: Energy Production (Fossil, Nuclear, Renewable, and Fusion Energy), Energy Use (in Buildings, Vehicles, and Industries), Fundamental Energy Sciences (Materials, Life, Environmental, and Computational Sciences, and Nuclear and High Energy Physics), Environmental Management, and Nuclear Nonproliferation. Grant applications submitted by small businesses must respond to a specific topic and subtopic during an open solicitation.



SBIR and STTR Have Three Distinct Phases

What are these Phases . . . and How do they Work?

Phase I:

Explores the FEASIBILITY of innovative concepts with awards up to \$150,000 (SBIR) and \$100,000 (STTR) for about 9 months. At DOE, only Phase I awardees may compete for Phase II.

Phase II:

This is the principal R&D effort where the feasibility of the innovative concept is DEMONSTRATED with awards up to \$1,000,000 (SBIR) and \$750,000 (STTR) over a two-year period.

Phase III:

Though officially, Phase III is part of the SBIR-STTR program, it is non-SBIR/STTR funding that is used by the small businesses to pursue commercial applications of their R&D. Under Phase III, as with other Federal agencies, DOE may award non-SBIR/STTR funded, follow-on awards for products or processes that meet the mission needs of its funding programs.

What are the Chances of Winning at an SBIR/STTR Award at DOE?

Proposal-to-Award Ratios are about 5:1 for Phase I and about 2:1 for Phase II.

About 40% of its Phase I awards are made each year to first-time awardees.

How to Get Started . . .

First, obtain the SBIR/STTR solicitation

The current SBIR/STTR solicitation lists the research topics under which DOE is seeking Phase I proposals, and also contains detailed information on the parameters of the SBIR and STTR programs and how to submit a proposal. DOE issues one combined SBIR and STTR solicitation each year, according to the following schedule:

Current Solicitation:

FY 2011 SBIR/STTR FUNDING OPPORTUNITY ANNOUNCEMENT (FOA) Opened: September 28, 2010 and closes November 15, 2010. Proposals are accepted through the last open day until 8:00 p.m. (EST).

DOE SBIR/STTR grant proposals are only accepted electronically via www.Grants.gov.

If you would like to be notified by email of future DOE SBIR/STTR solicitations and other important updates, please subscribe to our mailing list at <http://www.science.doe.gov/sbir/mailform.asp>.

Second, resolve your SBIR/STTR questions

Please use the following contact information to resolve your questions:

[SBIR/STTR Program](mailto:SBIR-STTR@science.doe.gov) – (301) 903-1414

[Proposal & Application Process](mailto:SBIR-STTR@science.doe.gov) – (301) 903-5707

[Research Topics](mailto:SBIR-STTR@science.doe.gov) – By email, please contact the Topic Author during the open solicitation period. Respective Topic Author contact information can be found at the DOE SBIR/STTR web site by clicking on the 2011 Technical Topic Description link at <http://www.science.doe.gov/sbir>.

DOE Technical and Commercialization Assistance Portal: <http://doecapreg.foresightst.com> .

You may also submit your inquiries via email by sending them to SBIR-STTR@science.doe.gov.