

#### **Burden Statement**

#### FY 2016 Survey of State Government R&D (SGRD) Burden Statement

Public reporting burden for this collection of information is estimated to average 2 hours per response, including the time for reviewing instructions, researching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to: ECON Survey Comments 0607-0933, U.S. Census Bureau, 4600 Silver Hill Road, Room EMD-6K064, Washington, DC 20233. You may e-mail comments to ECON.Survey.Comments@census.gov. Be sure to use ECON Survey Comments 0607-0933 as the subject. You are not required to respond to this collection of information if it does not display a valid approval number from the Office of Management and Budget (OMB). The eight-digit OMB number is 0607-0933 and appears in the upper right corner of the login screen.



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#### **Reporting Period**

When did your state agency's Fiscal Year 2016 end?

Month ✓ Day ✓ 2016 ✓

Note: For the rest of this survey, we will refer to this as FY 2016.

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### **R&D Activities**

Research and development (R&D) is creative work conducted systematically to extend scientific knowledge, or devise new applications, which may include materials, products, devices, processes, systems, methods, or services.

- R&D is aimed at new findings
  - It has not been done before
  - It may produce findings that could be published in academic journals
  - It includes ideas that could be patented
- R&D increases our knowledge of the subject
  - Helps create new products or applications
- R&D creates solutions that others may find useful
- Findings can be generalized to other situations and locations R&D outcomes are uncertain (because it's never been done before)
- · Solutions are not always obvious or expected

#### What is NOT R&D

- . Construction and acquisition of land and facilities used primarily for R&D (this is reported separately in Question 11)
- Fixed equipment used primarily for R&D (this is reported separately in Question 11) Program planning and evaluation
- Business development services for new companies
- Commercialization (includes promoting/producing the products/services from R&D projects)
- · Economic/policy/feasibility studies
- General patient services
- Information systems · Management studies
- Marketing of products/services
- Market research or analysis
- Routine data collection/dissemination
- Routine monitoring/testing
- Strategic planning
- Technology transfer

Examples of R&D		
What makes it R&D?	When it is R&D	When it is NOT R&D
R&D is novel.  It increases our knowledge of the subject.  It hasn't been done before.	You are testing blood samples as part of a research project to find out the side effects of a new cancer treatment.	You are collecting information from samples of patients to estimate the incidence of chicken pox in the state's population. (You are using a standard approach to estimate the spread of chicken pox.)
R&D creates solutions useful to others.  • Others might benefit from the findings.  • The findings can be generalized to other situations and locations.	You are testing a pavement on your highways that is currently used only at airports. Other states will want the results.	You are testing pavement on your state's highways to estimate how much you need to budget for pavement replacement over the next five years. (Other states will not benefit from your specific state information.)
The outcome of R&D is uncertain.  • The solution isn't obvious to an expert in that field.	Your research involves monitoring streams to determine whether a new program is increasing the population of a particular type of fish.	You are monitoring streams as part of plan to implement long-term monitoring for a particular type of fish. (The monitoring plan has already been tested and you are certain of the quality of the plan.)

Examples of classifying R&D from four activities		
Activity	It IS R&D	It is NOT R&D
Technical assistance	You hire a technical consultant to test the disease resistance for the new fish species you are developing. (The assistance addresses the uncertainty of the science/technology aspects of the product or service.)	You hire a technical consultant to help you design the graphic design for the package to ship your new fish species when you begin offering it for sale to other states. (The assistance addresses the uncertainty of the marketing/production aspects of the product or service.)
Help for new businesses	You provide funding to new businesses to help them with the costs of building prototypes of products they are developing.	You provide funding for new technology companies to help them acquire basic skills to market their new products.
Consulting	You use a consultant to plan testing of a highway pavement material that your transportation research center is trying to develop.	You use a consultant to help you secure health and safety approval for your new pavement material.
Developing a product from your research	You hire a university research center to test a new type of grass you developed to test whether it will survive actual conditions along the coastline.	You hire a law firm to help you with the process for patenting the new grass that you developed.

OYes

Please specify:

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your research	whether it will survive actual conditions along the coastline.
offices regardless of Estimates are acce	your department, agency, commission, public authority (herein referred to as agency) including all divisions and location that either perform or fund R&D.   Eptable  Institute the best of your ability.
3. Did your agency	y do any of the following during FY 2016?
a. Had a division O Yes O No	, branch or office devoted to research and development
b. Performed R8	D activities using agency staff
c. Funded resear	rch or development at another state or local government
d. Funded unive	rsities or other nonprofit organizations to perform research or development activities
e. Funded compo	anies or individuals to perform research or development activities

(250 chars max) ONo

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f. Performed or funded other research or development activities not specified above



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# R&D Expenditures

# Expenditures for R&D Performed Internally (Internal R&D)

4. During FY 2016, what were the total expenditures for internal R&D performance from federal funds, state funds, or other funds?

#### Include

- R&D performed by your agency's employees
- · Services performed by others in support of an agency R&D project (e.g. lab testing)
- Administration and management of R&D performed external to your agency (e.g., administration or R&D-related contracts or grant recipients)
- Salaries
- Benefits
- Supplies and movable equipment for R&D
- Travel
- Indirect costs
- Purchased services

#### Exclude

- R&D performed by higher education institutions
- · R&D performed by businesses and individuals
- R&D performed by non-profit organizations
- · R&D performed by other governments
- . Construction and acquisition of land or facilities used primarily for R&D (report in Question 11)
- · Fixed equipment used primarily for R&D (report in Question 11)

	FY 2016
a. Federal funds used for internal R&D  For example:  • Grants  • Contracts  • Awards  • Appropriations from the United States Government	\$ .00
b. State funds used for internal R&D  For example:  • Appropriations from the state legislature  • Agricultural commodity assessments/"check-offs"  • Bond funds  • General funds  • Restricted funds  • Revenue funds  • State grants  • Tobacco settlement funds  • Lottery proceeds  • Funds from other agencies within your state  • Revenue from charges, fees, or fines	\$ .00
c. Other Non-Federal Government Funds used for internal R&D  For example:  • Funding from other state governments  • Funding from state/regional partnership agreements  • Funding from local or tribal governments  • Funding from nonprofit organizations  • Funding from business	\$ .00
d. Funding from Nonprofit Organizations for internal R&D	\$ .00
e. Funding from Businesses for internal R&D	\$ .00
f. Funding from Higher Education Institutions for internal R&D	\$ .00
g. TOTAL	\$ .00

# Expenditures for R&D Performed by External Entities (External R&D)

5. During FY 2016, what were the total expenditures for external R&D performance from federal funds, state funds, or other funds?

Included R&D funded by your agency and performed by, higher-education institutions, agricultural experiment stations, businesses and individuals, non-profit organizations, other state or local governments.

 ${\sf Exclude\ pass-through\ funding\ for\ which\ you\ have\ no\ administrative\ oversight\ or\ control.}$ 

	FT 2010
<ul> <li>a. Federal funds used for external R&amp;D</li> <li>For example:</li> <li>Grants</li> <li>Contracts</li> <li>Awards</li> <li>Appropriations from the United States Government</li> </ul>	\$00
b. State funds used for external R&D For example:  • Appropriations from the state legislature • Bond funds • General funds • Restricted funds • Revenue funds • State grants • Tobacco settlement funds • Lottery proceeds • Funds from other agencies within your state	\$.00
c. Other sources used for external R&D For example:  • Funding from other state governments  • Funds from state/regional partnership agreements  • Funding from local or tribal governments  • Funding from nonprofit organizations  • Funding from companies/industry  Please specify:	\$00
d. TOTAL	\$00

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**Attachment B** 



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### **Total R&D Expenditures**

The following matrix shows the answers reported in Questions 4 and 5. To revise them, please return to the appropriate question and enter new data.

FY		
-	_	 

	Internal	External	Total by Source
Federal	\$	\$	\$
State	\$	\$	\$
Other	\$	\$	\$
Total	\$	\$	\$

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# **Total R&D Expenditures by Function**

	FY 2016
Agriculture For example:  • Animal husbandry  • Aquaculture  • Crop management  • Food and commodities	\$0
Energy For example:  • Alternative fuels (e.g., ethanol, biofuels) • Energy conservation/efficiency • Oil and gas • Other fossil fuels (e.g., coal, clean-coal, lignite) • Renewable energy (e.g., wind, solar)	\$
Environment and Natural Resources For example:  • Air and water quality • Fish, game, and wildlife • Forestry • Geological studies • Marine and aquatic environments • Parks and preserves • Soil and water conservation	\$
Health For example:  Biomedical research  Mental health and addiction  Pharmacutical  Public health	\$
Transportation For example:  Aviation Highways, roads, and bridges Ports and waterways Public transportation Rail and freight	\$
Other functions For example:  Corrections and criminal justice Education Labor Public safety Social services  Please specify:	\$
. Total	\$ .0

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### Funds Received from Federal Agencies for R&D

8. Of the reported expenditures from federal funds, what amount came from the following agencies? Please add any agencies not already listed. If none, please report \$0.

Federal Agency	FY 2016	
Department of Agriculture	\$	.00
Department of Commerce	\$	.00
Department of Defense	\$	.00
Department of Education	\$	.00
Department of Energy	\$	.00
Department of Health and Human Services	\$	.00
Department of Homeland Security	\$	.00
Department of Housing and Urban Development	\$	.00
Department of Interior	\$	.00
Department of Justice	\$	.00
Department of Labor	\$	.00
Department of State	\$	.00
Department of Transportation	\$	.00
Department of the Treasury	\$	.00
Department of Veteran Affairs	\$	.00
Environmental Protection Agency	\$	.00
National Aeronautics and Space Administration	\$	.00
National Science Foundation	\$	.00
Other, please specify: (100 chars. max.)		
	\$\$	.00
TOTAL	\$ Should equal \$	.00

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### FY 2015 Expenditures for R&D Performed Internally by Type of Work

9. What amount of your reported FY 2016 federal internal R&D expenditures and reported FY 2016 non-federal internal R&D expenditures in Question 4 were for basic research, applied research. and experimental development, from federal and non-federal funds? (Please use your best estimate.)

	F	Y 2016
	Federal Funds	Non-federal Funds
a. Basic research  Research undertaken primarily to acquire new knowledge without any particular application or use in mind. (See below for	\$00	\$ .00
b. Applied research  Research conducted to gain the knowledge or understanding to meet a specific, recognized need. (See below for examples of Applied Research)	\$00	\$00
C. Experimental Development  The systematic use of the knowledge or understanding gained from research directed towards the production of useful materials, devices, systems, or methods, including the design and development of prototypes and processes. (See below for examples of Experimental Development)	\$00	.00
d. TOTAL	\$00	\$ .00

	Examples	
Basic Research	Applied Research	Experimental Development
You are studying the properties of blood to determine what affects coagulation.	You are conducting research on how a new chicken pox vaccine affects blood coagulation.	You are testing a newly developed chicken pox vaccine with various ages of school children before implementing it statewide.
You are studying the properties of molecules under various heat and cold conditions.	You are conducting research on the properties of particular substances under various heat and cold conditions with the objective of finding longer lasting components for pavement.	You are testing a newly developed pavement under various types of heat and cold conditions prior to using it on your state's highways.
You are studying the heart chambers of various fish species.	You are examining various levels of a toxic substance to determine the maximum safe level for fish in a stream.	You are designing a new system for monitoring a stream that will try out the results of your recent research in a real world situation.
You are studying the effects of various strategies for teaching math in order to understand which is the most effective.	You are studying the implementation of a specific math curriculum to determine what factors lead to successful implementation by teachers.	You are using research in the field to develop education software and support tools for math curriculum.

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### Attachment I



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### Expenditures for R&D Performed Externally by Type of Entity

10. Of the reported R&D performance in Question 5, how much was to

	FY 2016
a. Higher education institutions?	\$ .00
b. Businesses or individuals?	\$ .00
c. Other entities?  For example: Other state governments Local governments Non-profit organizations Please specify:(250 chars. max.)	\$.00
d. TOTAL	\$ .00 Should equal \$

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11. During FY 2016, what were your agency's R&D expenditures for construction and acquisition of land and facilities (including fixed equipment) used primarily for R&D?

This question asks about R&D facilities and fixed equipment, such as reactors, wind tunnels, and particle accelerators. It includes the acquisition of, construction of, and major repairs or alterations to structures, works, equipment, facilities, or land for use in R&D activities. Construction and acquisition of facilities used primarily for R&D includes major costs for construction and purchase of

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. Only expenditures related to the R&D activities of your agency.

#### Exclude:

- Expendable or movable equipment (e.g., spectrometers, microscopes).
- · Office furniture and equipment.
- Costs of pre-design studies (e.g., those undertaken before commitment to a specific facility).

NOTE: The expenditures reported on this question are separate from the R&D expenditures asked throughout the rest of the survey, and should not be included in the expenditures on any other question in the survey.

FY 2016	1900000000
\$00	

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#### Please enter your userID and password:

UserID:

Password:

For questions regarding this survey, contact:
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#### FY2016 Survey of State Government Research and Development

The purpose of this survey is to measure your state's contributions toward scientific and technological advances. The results of this survey will be used to estimate national totals for R&D in conjunction with other data collected by the National Science Foundation from private industry, academic institutions, and the federal government.

The U.S. Census Bureau conducts the survey and requests your voluntary assistance under the authority of Title 13 United States Code, Section 8(b) and Title 42 United States Code, Sections 1861-76 (National Science Foundation Act of 1950, as amended).

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