

**Advanced  
Research Projects  
Agency-Energy**

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**Advanced Research Projects Agency – Energy  
(INCLUDING CANCELLATION OF FUNDS)  
Proposed Appropriation Language**

*For Department of Energy administrative expenses necessary in carrying out the activities authorized by section 5012 of the America COMPETES Act (Public Law 110–69), \$20,000,000, to remain available until September 30, 2019: Provided, That of the unobligated balances from prior year appropriations available under this heading, \$46,367,000 is hereby permanently cancelled: Provided further, That no amounts may be cancelled from amounts that were previously designated by the Congress as an emergency requirement pursuant to a concurrent resolution on the budget or the Balanced Budget and Emergency Deficit Control Act of 1985: Provided further, That of the funding made available under this heading for ARPA-E projects in prior Acts, \$45,000,000 shall be available for program direction, to remain available until expended: Provided further, That no amounts may be repurposed pursuant to this paragraph from amounts that were designated by the Congress as an emergency requirement pursuant to a concurrent resolution on the budget or the Balanced Budget and Emergency Deficit Control Act of 1985.*

Note.—A full-year 2017 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Further Continuing Appropriations Act, 2017 (P.L. 114–254). The amounts included for 2017 reflect the annualized level provided by the continuing resolution.

**Explanation of Changes**

The \$20,000,000 request for FY 2018 is a \$271,000,000 decrease from the FY 2016 enacted level and will be used, along with the requested \$45,000,000 use of prior year balances, to execute the termination of the Advanced Research Projects Agency – Energy.

**Public Law Authorizations**

P.L. 95-91, “Department of Energy Organization Act” (1977)

P.L. 109-58, “Energy Policy Act of 2005”

P.L. 110-69, “America COMPETES Act of 2007”

P.L. 111-358, “America COMPETES Reauthorization Act of 2010”



**Advanced Research Projects Agency - Energy**

(\$K)

FY 2016 Enacted	FY 2017 Annualized CR*	FY 2018 Request <sup>1</sup>
291,000	290,446	20,000

\*FY 2017 amounts reflect the P.L. 114-254 continuing resolution level annualized to a full year. These amounts are shown only at the congressional control level and above, below that level, a dash (-) is shown.

**Overview**

The Advanced Research Projects Agency-Energy (ARPA-E) was established by the America COMPETES Act of 2007 following a recommendation by the National Academies in the *Rising above the Gathering Storm* report. As defined by its authorization, ARPA-E catalyzes transformational energy technologies to enhance the economic and energy security of the United States.

As of February 2017, ARPA-E has funded over 580 projects with approximately \$1.5 billion through 39 focused programs and open funding solicitations.

**Highlights and Major Changes in the FY 2018 Budget Request**

The Budget Request proposes to eliminate ARPA-E as described in the President’s “America First – A Budget Blueprint to Make America Great Again.” No additional “ARPA-E Projects” funding is requested to fund new program development. \$20 million in new program direction appropriations is requested to manage existing projects in FY 2018 and begin office closure.

In addition, ARPA-E requests \$45 million of prior-year carryover balances previously appropriated for Projects, be reallocated to Program Direction to complete office closure. All Project funds appropriated in prior years would be executed according to prior year appropriation acts, with the exception of the balances that are requested to be cancelled or repurposed. ARPA-E operations would wind down in 2018 and the office would shut down in FY 2019, at which point remaining monitoring and contract closeout activities would be transferred elsewhere within DOE. The Budget assumes that a plan will be developed in FY 2018 to ensure that prudent monitoring and management of ARPA-E contracts and responsible stewardship of taxpayer funds continues after the ARPA-E office closes.

<sup>1</sup> The FY 2018 request also includes a cancellation of \$46,367,000 thus the net appropriation for this account is -\$26,367,000.

**Advanced Research Projects Agency - Energy  
Funding by Congressional Control (\$K)**

	<b>FY 2016 Enacted</b>	<b>FY 2017 Annualized CR*</b>	<b>FY 2018 Request</b>	<b>FY 2018 vs FY 2016</b>
ARPA-E Projects	261,750	261,252	0	-261,750
Program Direction	29,250	29,194	65,000	35,750
<b>Subtotal, Advanced Research Projects Agency - Energy</b>	<b>291,000</b>	<b>290,446</b>	<b>65,000</b>	<b>-226,000</b>
Use of Prior Year Balances	0	0	-45,000	-45,000
<b>Total, Advanced Research Projects Agency - Energy</b>	<b>291,000</b>	<b>290,446</b>	<b>20,000</b>	<b>-271,000</b>
 <b>Federal FTEs</b>	 <b>56</b>	 <b>56</b>	 <b>44</b>	 <b>-12</b>

\*FY 2017 amounts reflect the P.L. 114-254 continuing resolution level annualized to a full year. These amounts are shown only at the congressional control level and above, below that level, a dash (-) is shown.

SBIR/STTR:

- FY 2016 Current: \$10,485 total (SBIR \$8,124 / STTR \$2,361)
- FY 2017 Projected: \$9,536 total (SBIR \$8,360 / STTR \$1,176)
- FY 2018 Request<sup>1</sup>: \$0 total (SBIR \$0 / STTR \$0)

<sup>1</sup> In FY 2018, ARPA-E is not requesting any Project funding and as such will not make additional Small Business Innovation Research / Small Business Technology Transfer

**ARPA-E Projects**

**Overview**

No funding is requested in FY 2018 for the ARPA-E Projects program.

**ARPA-E Projects  
Funding (\$K)**

	<b>FY 2016 Enacted</b>	<b>FY 2017 Annualized CR*</b>	<b>FY 2018 Request</b>	<b>FY 2018 vs FY 2016</b>
ARPA-E Projects				
Transportation Systems	104,700	---	0	-104,700
Stationary Power Systems	157,050	---	0	-157,050
<b>Total, ARPA-E Projects</b>	<b>261,750</b>	<b>261,252</b>	<b>0</b>	<b>-261,750</b>

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**SBIR/STTR:**

- FY 2016 Current: \$10,485 total (SBIR \$8,124 / STTR \$2,361)
- FY 2017 Projected: \$9,536 total (SBIR \$8,360 / STTR \$1,176)
- FY 2018 Request<sup>1</sup>: \$0 total (SBIR \$0 / STTR \$0)

<sup>1</sup> In FY 2018, ARPA-E is not requesting any Project funding and as such will not make additional Small Business Innovation Research / Small Business Technology Transfer (SBIR/STTR) program investments using FY 2018 budget authority.

**ARPA-E Projects**  
**Explanation of Major Changes (\$K)**

	<b>FY 2018 vs FY 2016</b>
<b>Transportation Systems:</b> The Transportation Systems request for FY 2018 is a 104,700 decrease from the FY 2016 enacted level and terminates this activity.	<b>-104,700</b>
<b>Stationary Power Systems:</b> The Stationary Power Systems request for FY 2018 is a 157,050 decrease from the FY 2016 enacted level and terminates this activity.	<b>-157,050</b>
<hr/> <b>Total, ARPA-E Projects</b>	<hr/> <b>-261,750</b>

**ARPA-E Projects**

**Activities and Explanation of Changes**

<b>FY 2016 Enacted</b>	<b>FY 2018 Request</b>	<b>Explanation of Changes FY 2018 vs FY 2016</b>
<b>\$261,750,000</b>	<b>\$0</b>	<b>- \$261,750,000</b>
<p>In FY 2016 ARPA-E released funding opportunity announcements for seven focused programs and awarded \$201M to 77 projects for the following technology programs:</p> <ul style="list-style-type: none"> <li>• \$31M (14 projects) to develop innovative materials that will improve the energy efficiency of existing single-pane windows in commercial and residential buildings (SHIELD)</li> <li>• \$25M (9 projects) creating innovative components to increase energy efficiency of datacenters (ENLITENED)</li> <li>• \$35M (10 projects) technologies that develop new crop breeding approaches for improved root and soil function plants to store more carbon in the ground and take up nutrients and water more efficiently (ROOTS)</li> <li>• \$35M (16 projects) develop technologies that use renewable energy to convert air and water into cost-competitive liquid fuels (REFUEL)</li> <li>• \$34M (11 projects) create new control technologies that reduce energy consumption of future vehicles by using connectivity and vehicle automation (NEXTCAR)</li> <li>• \$3.5M (1 project) to build and operate a testing facility for ARPA-E’s MONITOR project teams (MONITOR Test Site)</li> <li>• \$37M (16 projects) for developing new processing methods and approaches to device integration to accelerate devices built with high performance ion-conducting solids to commercial deployment (IONICS)</li> </ul>	<p>No Project funding requested in FY 2018.</p>	<p>The Budget Request proposes to eliminate ARPA-E with operations winding down in 2018 and the office shutting down in FY 2019, at which point remaining monitoring and contract closeout activities would be transferred elsewhere within DOE. All prior year Project funds would be executed according to prior year appropriations, with the exception of the balances that are requested to be cancelled or repurposed.</p>

**ARPA-E  
Advanced Research Projects Agency - Energy  
Performance Measures**

In accordance with the GPRA Modernization Act of 2010, the Department sets targets for, and tracks progress toward, achieving performance goals for each program.

	FY 2016	FY 2017	FY 2018
Performance Goal (Measure)	<b>Award Funding - Cumulative percentage of award funding committed 45 days after award selections are announced</b>		
Target	≥ 70 %	≥ 70 %	N/A
Result	Met – 100	TBD	N/A
Endpoint Target	Measure of efficiency in awarding funds.		
Performance Goal (Measure)	<b>New Company Formation - Number of new companies formed as a direct result of ARPA-E funding. This is a new performance measure for ARPA-E in FY 2015. As of the end of FY 2013 ARPA-E funded research has led to the formation of at least 24 new companies. That is the baseline from which we would expect to add at least 3 new companies per year.</b>		
Target	≥ 3 new companies founded	≥ 3 new companies founded	N/A
Result	Met	TBD	N/A
Endpoint Target	Measure of impact of ARPA-E awards on creating new jobs and industries.		

## **Program Direction – Discretionary Budget Request**

### **Overview**

Program Direction provides ARPA-E with the resources required for salaries and benefits of federal staff; travel; support services contracts to provide technical advice and project management assistance; and other related expenses, including the DOE Working Capital Fund.

The ARPA-E Program Directors and Technology-to-Market (T2M) advisors provide awardees with technical guidance, business insight and direction to ensure technical and commercial milestones are achieved by established deadlines. When a project is not achieving the goals of the program, ARPA-E works with the awardee to rectify the issue or, in cases where the issue cannot be corrected, ARPA-E discontinues funding for the project. ARPA-E also has in-house legal, procurement, and contracting staff, co-located with the Program Directors and T2M advisors, to provide additional support. ARPA-E uses support contractors for technical advice and program management assistance.

### **Highlights of the FY 2018 Budget Request**

The FY 2018 Request for Program Direction is \$20 million, a \$9.25 million decrease from the FY 2016 Enacted level. ARPA-E proposes to supplement the \$20 million in new Program Direction appropriations with \$45 million in prior year balances.

ARPA-E fully funds (obligates) projects up front and reimburses projects as costs are incurred. Current ARPA-E projects are funded until FY 2021 and require Federal stewardship for meaningful impact. ARPA-E will begin a scale down of both Federal and Contractor staff in FY 2018 and will close the office in FY 2019 with ongoing project management being transferred elsewhere in DOE. The Budget assumes that a plan will be developed in FY 2018 to ensure that prudent monitoring and management of ARPA-E contracts and responsible stewardship of taxpayer funds continues after the ARPA-E office closes.

**Program Direction – Appropriations Request  
Funding (\$K)**

	<b>FY 2016 Enacted</b>	<b>FY 2017 Annualized CR*</b>	<b>FY 2018 Request</b>	<b>FY 2018 vs FY 2016</b>
<b>Washington Headquarters</b>				
Salaries and Benefits	10,103	--	8,414	-1,689
Travel	1,316	--	769	-547
Support Services	12,858	--	15,066	2,208
Other Related Expenses	4,973	--	4,637	-336
Office Closure Activities Post FY 2018	0	--	36,114	36,114
<b>Subtotal, Program Direction</b>	<b>29,250</b>	<b>29,194</b>	<b>65,000</b>	<b>35,750</b>
Use of Prior Year Balances	0	0	-45,000	-45,000
<b>Total, Program Direction</b>	<b>29,250</b>	<b>29,194</b>	<b>20,000</b>	<b>-9,250</b>
<b>Federal FTEs</b>	<b>56</b>	<b>56</b>	<b>44</b>	<b>-12</b>
<b>Support Services</b>				
Technical Support	4,500	--	5,273	773
Management Support	8,358	--	9,793	1,435
<b>Total, Support Services</b>	<b>12,858</b>	<b>--</b>	<b>15,066</b>	<b>2,208</b>
<b>Other Related Expenses</b>				
Rental payments to GSA	2,283	--	2,140	-143
Communications, utilities, and misc. charges	550	--	511	-39
Printing and reproduction	10	--	9	-1
Other services from non-Federal sources	475	--	441	-34
Other goods and services from Federal sources	1,550	--	1,439	-111
Supplies and materials	105	--	97	-8
<b>Total, Other Related Expenses</b>	<b>4,973</b>	<b>--</b>	<b>4,637</b>	<b>-336</b>

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**Program Direction – Appropriations Request**

**Activities and Explanation of Changes**

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
<b>Program Direction \$29,250,000</b>	<b>\$65,000,000</b>	<b>\$37,750,000</b>
<b>Salaries and Benefits \$10,103,000</b>	<b>\$8,414,000</b>	<b>-\$1,689,000</b>
At the FY 2016 Enacted level, ARPA-E anticipates needing up to 56 Federal FTEs.	At the FY 2018 Request level, ARPA-E anticipates needing up to 44 Federal FTEs.	Reduced salaries and benefits is the result of a planned reduction in federal staff, which will be achieved through a continued hiring freeze and review of where functional consolidation and position reductions can be most effectively achieved. This results in 44 annualized FTEs; 37 projected FTEs at the end of FY 2018. Additional workforce restructuring efforts will be designed through the management and monitoring plan to be developed for ARPA-E in FY 2018.
<b>Travel \$1,316,000</b>	<b>\$769,000</b>	<b>-\$547,000</b>
At the FY 2016 Enacted level, ARPA-E Program Directors and Technology-to-Market advisers visited performers to monitor ongoing project status.	At the FY 2018 Request level, ARPA-E Program Directors and Technology-to-Market advisers will continue to visit performers to monitor ongoing project status.	-\$547,000: Travel reduction commensurate with project reduction.
<b>Support Services \$12,858,000</b>	<b>\$15,066,000</b>	<b>\$2,208,000</b>
At the FY 2016 Enacted level, ARPA-E maintained support service contractors to support ARPA-E federal staff in the management and oversight of projects and other required functions.	At the FY 2018 Request level, ARPA-E anticipates decreasing support service contractors as projects conclude. Support service contractors will support ARPA-E federal staff in the management and oversight of projects and other required functions.	+\$2,208,000: Increase from FY 2016 Enacted levels. However, actual FY 2016 support service cost was \$19,569,000 – funded through carryover of unobligated funding from FY 2015. Effective FY 2018 reduction from FY 2016 actual level is -\$4,503,000.
<b>Other Related Expenses \$4,973,000</b>	<b>\$4,637,000</b>	<b>-\$336,000</b>
The FY 2016 Enacted level for other related expenses primarily consists of Working Capital Fund and Information Technology support costs, which are commensurate with the level of FTEs and support services requested.	The FY 2018 Request level for other related expenses primarily consists of Working Capital Fund and Information Technology support costs, which are commensurate with the level of FTEs and support services requested.	-\$336,000: Decrease in WCF overhead fund due to staffing reductions.
<b>Office Closure Activities Post FY 2018 \$0</b>	<b>\$36,114,000</b>	<b>\$36,114,000</b>

FY 2016 Enacted	FY 2018 Request	Explanation of Changes FY 2018 vs FY 2016
New activity in FY 2018.	A plan will be developed in FY 2018 to ensure that prudent monitoring and management of ARPA-E contracts and responsible stewardship of taxpayer funds continues after the ARPA-E office closes. The Office Closure Activities Post FY 2018 line will provide funding to complete ARPA-E office closure and cover the estimated cost to manage the current projects through completion from FY 2019 to FY 2021.	Funding provides for closure of the ARPA-E office and award monitoring and management activities.

**Advanced Research Projects Agency - Energy  
Research and Development (\$K)**

	<b>FY 2016 Enacted</b>	<b>FY 2017 Annualized CR*</b>	<b>FY 2018 Request**</b>	<b>FY 2018 vs FY 2016</b>
Basic	0	0	0	0
Applied	145,500	145,223	0	-145,500
Development	145,500	145,223	0	-145,500
Subtotal, R&D	291,000	290,446	0	-291,100
Equipment	0	0	0	0
Construction	0	0	0	0
<b>Total, R&amp;D</b>	<b>291,000</b>	<b>290,446</b>	<b>0</b>	<b>-291,000</b>

**Advanced Research Projects Agency - Energy  
Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) (\$K)**

	<b>FY 2016 Enacted</b>	<b>FY 2017 Annualized CR*</b>	<b>FY 2018 Request**</b>	<b>FY 2018 vs FY 2016</b>
ARPA-E Projects				
SBIR	8,124	8,630	0	-8,124
STTR	2,361	1,176	0	-2,361
<b>Total, SBIR/STTR</b>	<b>10,485</b>	<b>9,806</b>	<b>0</b>	<b>-10,485</b>

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\*\*In FY 2018, ARPA-E is not requesting any Project funding and as such will not conduct any new R&D or make additional Small Business Innovation Research / Small Business Technology Transfer (SBIR/STTR) program investments using FY 2018 budget authority.



**Department of Energy  
FY 2018 Congressional Budget  
Funding By Appropriation By Site**

(\$K)

<b>Advanced Researched Projects Agency-Energy</b>	<b>FY 2016 Enacted</b>	<b>FY 2017 Annualized CR*</b>	<b>FY 2018 Request</b>
Washington Headquarters			
<b>Advanced Researched Projects Agency-Energy</b>			
Projects	261,750	261,252	0
Program Direction	29,250	29,194	20,000
<b>Total, Advanced Researched Projects Agency-Energy</b>	<b>291,000</b>	<b>290,446</b>	<b>20,000</b>
<b>Total, Washington Headquarters</b>	<b>291,000</b>	<b>290,446</b>	<b>20,000</b>
<b>Total, Advanced Researched Projects Agency-Energy</b>	<b>291,000</b>	<b>290,446</b>	<b>20,000</b>

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**Department Of Energy**  
**FY 2018 Congressional Budget**  
**Funding By Appropriation By Site**

(\$K)

<b>Advanced Researched Projects Agency-Energy</b>	<b>FY 2016 Enacted</b>	<b>FY 2017 Annualized CR</b>	<b>FY 2018 Request</b>
<b>Washington Headquarters</b>			
<b>Advanced Researched Projects Agency-Energy</b>			
Projects	261,750	261,252	0
Program Direction	29,250	29,194	20,000
<b>Total, Advanced Researched Projects Agency-Energy</b>	<b>291,000</b>	<b>290,446</b>	<b>20,000</b>
<b>Total, Washington Headquarters</b>	<b>291,000</b>	<b>290,446</b>	<b>20,000</b>
<b>Total, Advanced Researched Projects Agency-Energy</b>	<b>291,000</b>	<b>290,446</b>	<b>20,000</b>