

ARPA-E: Biden's Proposed FY 2023 Budget Boosts Investment in Clean Energy Technologies

Article By:

Kaoru C. Suzuki

On March 28, 2022, the Biden-Harris Administration sent the President's Budget for Fiscal Year (FY) 2023 to the United States Congress ("**Congress**"). The President's [proposed \\$5.8 trillion budget](#) for FY 2023 allocates billions of dollars toward combating climate change and boosting clean energy development. Biden's budget requests \$48.2 billion for the Department of Energy ("**DOE**"), with \$700 million of those funds allocated to the DOE's Advanced Research Projects Agency-Energy program ("**ARPA-E**").^[1] With these increased funds, the Biden administration plans for ARPA-E to expand its scope beyond energy technology-focused projects to include climate adaptation and resilience innovations.^[2]

What Is ARPA-E?

ARPA-E is a United States federal government agency under the purview of the Department of Energy that funds and promotes the research and development of advanced energy technologies. ARPA-E was recommended to Congress in the 2005 National Academies report *Rising Above the Gathering Storm: Energizing and Employing America for a Bright Economic Future*, which published recommendations for federal government actions to maintain and expand U.S. competitiveness.^[3] In 2007, ARPA-E was officially created after Congress implemented a number of the report's recommendations by enacting the America COMPETES Act.^[4] The 2007 Act was superseded by the America COMPETES Reauthorization Act of 2010, which incorporated much of the original language of the 2007 Act but made some modifications to ARPA-E structure.^[5] In 2009, ARPA-E officially commenced operations after receiving its first appropriated funds through the American Recovery and Reinvestment Act of 2009 —\$400 million to fund the establishment of ARPA-E.^[6]

ARPA-E's mission is statutorily defined as overcoming "the long-term and high-risk technology barriers in the development of energy technologies."^[7] This involves the development of energy technologies that will achieve various goals, including the reduction of fossil fuel imports, the reduction of energy-related emissions, improvements in energy efficiency, and increased resilience and security of energy infrastructure.^[8] The statute directs ARPA-E to pursue these objectives through particular means:

1. Identifying and promoting revolutionary advances in fundamental and applied sciences;

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2. Translating scientific discoveries and cutting-edge inventions into technological innovations; and
 3. Accelerating transformational technological advances in areas industry is unlikely to undertake because of technical and financial uncertainty.[9]

The Impact of ARPA-E

Since 2009, ARPA-E has provided approximately \$3 billion in R&D funding for over 1,294 potentially transformational energy technology projects.[10] Publishing annual reports to analyze and catalog its influence, the agency tracks commercial impact with key early indicators, including private-sector follow-on funding, new company formation, partnership with other government agencies, publications, inventions, and patents.[11]

Many ARPA-E project teams have continued to advance their technologies: 129 new companies have been formed, 285 licenses have been issued, 268 teams have partnered with another government agency, and 185 teams have together raised over \$9.87 billion in private-sector follow-on funding.[12] In addition, ARPA-E projects fostered technological innovation and advanced scientific knowledge, as evidenced by the 5,497 peer-reviewed journal articles and 829 patents issued by the U.S. Patent and Trademark Office that sprung from the ARPA-E program.[13] ARPA-E recently announced that it is starting to count exits through public listings, mergers, and acquisitions. As of January 2022, ARPA-E has 20 exits with a total reported value of \$21.6 billion.[14]

How Does Biden's FY 2023 Budget Affect ARPA-E?

Biden has requested a 56% increase for ARPA-E, to \$700 million.[15] The budget also proposes expansions of ARPA-E's purview to more fully address innovation gaps around adaptation, mitigation, and resilience to the impacts of climate change.[16] This investment in research and development of high-potential and high-impact technologies aims to help remove technological barriers to advance energy and environmental missions.[17]

The request provides that ARPA-E shall also expand its scope "to invest in climate-related innovations necessary to achieve net zero climate-inducing emissions by 2050." [18] Given the increasing bipartisan support for alternative energy funding and ARPA-E's continuing and rising commercial impact, it is likely that ARPA-E's funding and support of the research and development of early-stage energy technologies will continue to pave the way for the commercialization of advanced energy technologies.

Endnotes

1. <https://www.law360.com/articles/1478133/biden-budget-provides-billions-for-clean-energy>
2. <https://www.energy.gov/articles/statement-energy-secretary-granholm-president-bidens-doe-fiscal-year-2023-budget>
3. <https://doi.org/10.17226/24778>
4. *Id.* at 22

5. *Id.*

6. *Id.*

7. 42 U.S.C. § 16538(b)

8. 42 U.S.C. § 16538(c)(1)(A)

9. 42 U.S.C. § 16538(c)(2)

10. <https://arpa-e.energy.gov/about/our-impact>

11. *Id.*

12. *Id.*

13. *Id.*

14. *Id.*

15. <https://www.science.org/content/article/biden-s-2023-budget-request-science-aims-high-again>

16. https://www.whitehouse.gov/wp-content/uploads/2022/03/budget_fy2023.pdf

17. *Id.*

18. <https://www.science.org/content/article/biden-s-2023-budget-request-science-aims-high-again>

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National Law Review, Volumess XII, Number 127

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