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# Department of Energy Overview

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# Overview

## Department of Energy

- Mission
- History
- Organization
- Spending & Budget
- Highlights of Selected Offices



# Department of Energy Mission

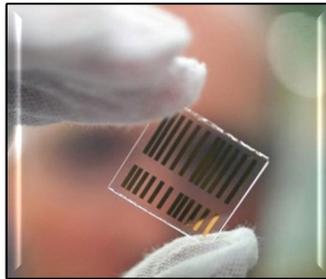
Mission: Ensure America's security and prosperity by addressing its energy, environmental, and nuclear challenges through transformative science and technology solutions.

## Energy



Catalyze the timely, material, and efficient transformation of the nation's energy system and secure U.S. leadership in energy technologies.

## Science & Innovation



Maintain a vibrant U.S. effort in science and engineering as a cornerstone of our economic prosperity with clear leadership in strategic areas.

## Nuclear Safety & Security



Enhance nuclear security through defense, nonproliferation, and environmental efforts.

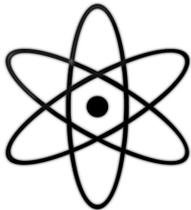
## Management & Operational Excellence



Establish an operational and adaptable framework that combines the best wisdom of all Department stakeholders to maximize mission success.

# History

Created under the Department of Energy Organization Act of 1977 and brought together two programmatic traditions into one Federal Agency



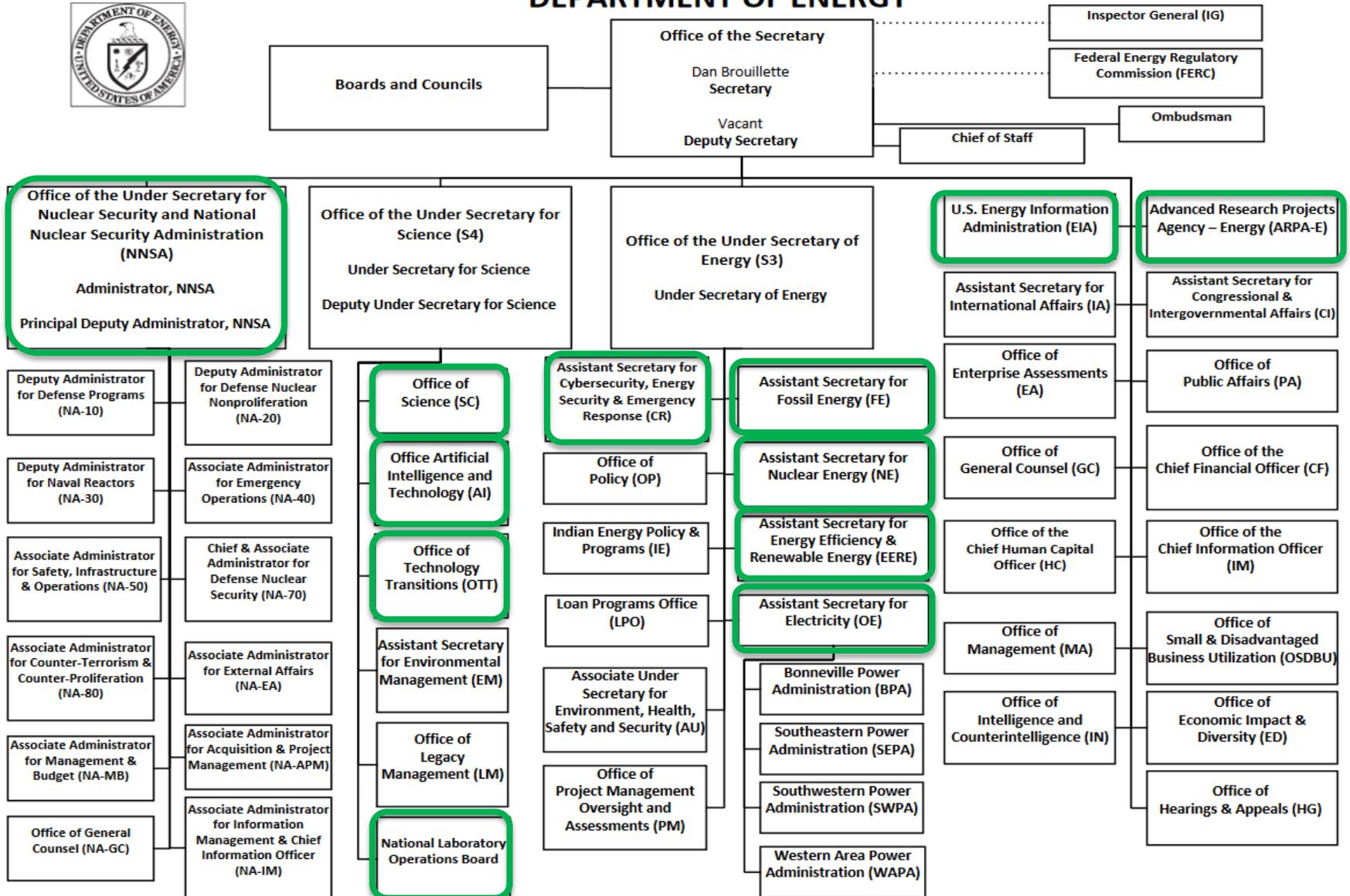
- Defense responsibilities including the design, construction, and testing of nuclear weapons
- Dates back to the Manhattan Project and the Atomic Energy Act of 1946



- Energy related programs that had been loosely connected and scattered throughout the federal government
- Until the 1970s, the federal government played a limited role in formulating national energy policy

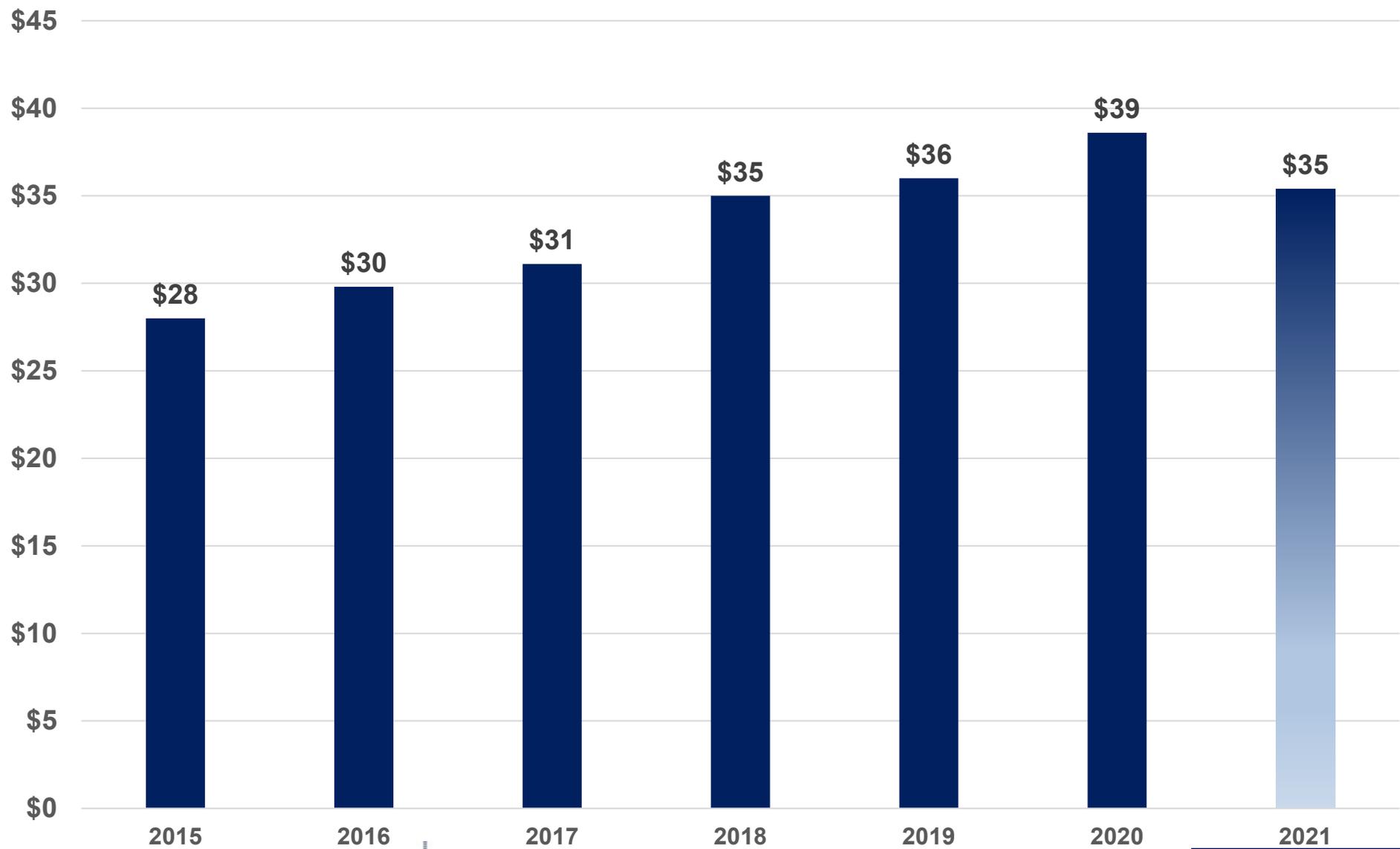


# DEPARTMENT OF ENERGY



## RESEARCH

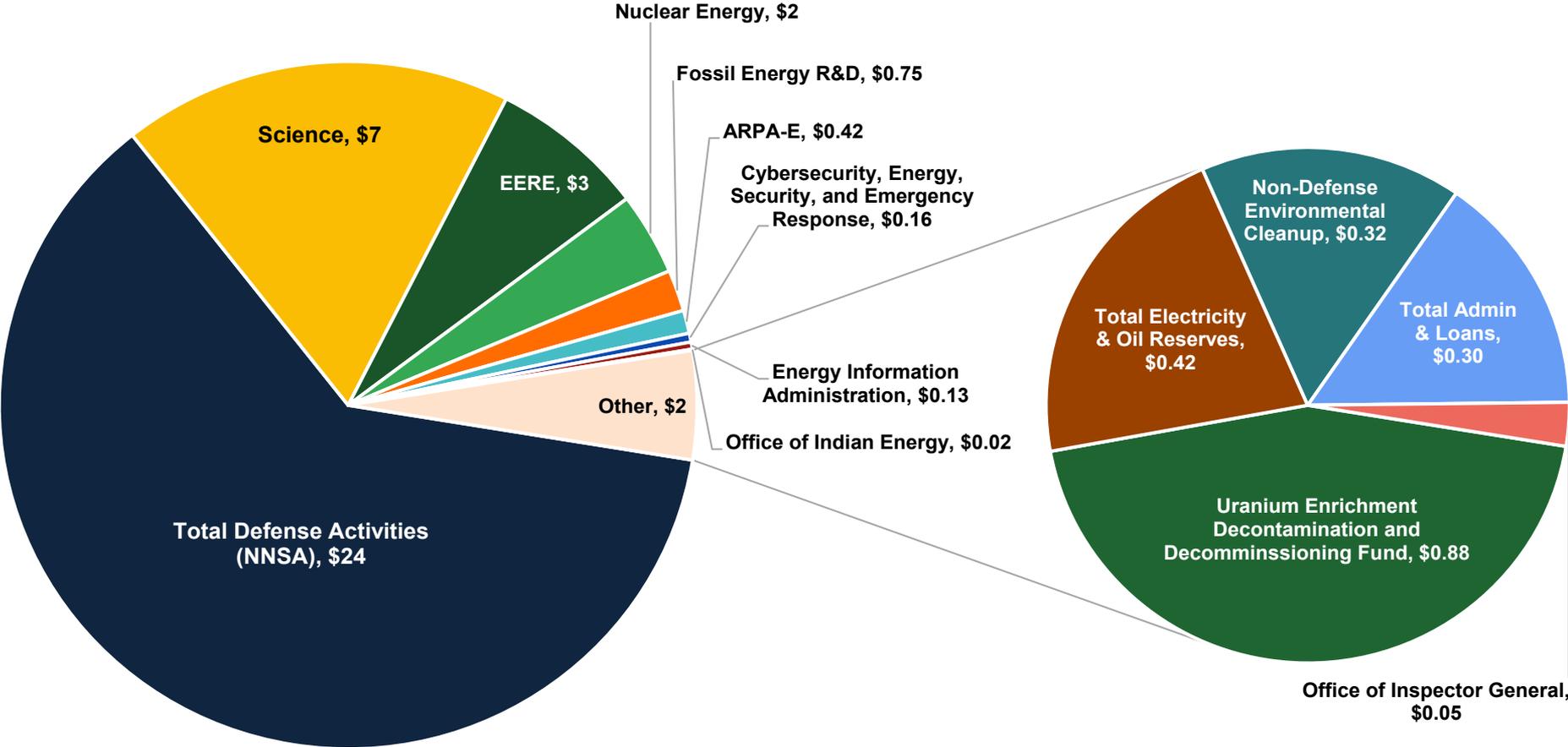
# DOE Appropriations (billions)



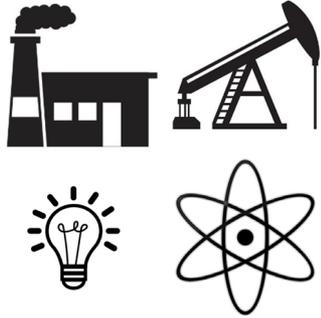
RESEARCH

*FY21 is Funding Requested by White House*

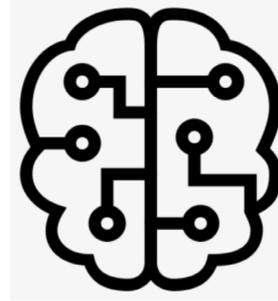
# DOE FY20 Appropriations (billions)



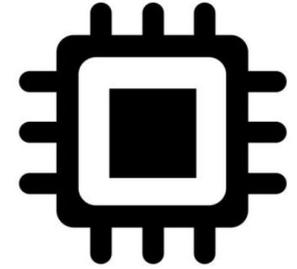
# FY21 Proposed Budget Highlights



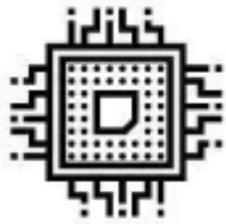
\$2.8 billion in early-stage technology R&D for renewable energy, nuclear energy, and fossil energy



\$200 million for Artificial Intelligence



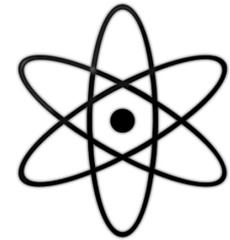
\$710 million for the Exascale Computing Initiative



\$249 million for Quantum Funding



\$185 million in grid cyber funding



\$19.8 billion for the National Nuclear Security Administration

# Artificial Intelligence & Technology Office

## **Vision:**

Transform the Department of Energy into the United States Government's lead agency in the civilian use of artificial intelligence (AI) by accelerating the research, development, delivery, and application of AI.

## **Mission:**

- Accelerate the delivery of AI-enabled capabilities, scale the Department-wide development of AI, synchronize AI applications to advance the agency's core missions, and expand public and private sector strategic partnerships, all in support of American AI leadership.

## Cybersecurity, Energy Security, & Emergency Response (\$156 Million)

- Addresses the emerging threats of tomorrow while protecting the reliable flow of energy to Americans today
- Preparedness and response activities to natural and man-made threats

## **Mission:**

- Leads the Department of Energy's emergency preparedness and coordinated response to disruptions to the energy sector, including physical and cyber-attacks, natural disasters, and man-made events.



## Advanced Research Project Agency – Energy (\$420 Million)

- Advances high-potential, high-impact energy technologies that are too early for private-sector investment. ARPA-E awardees are unique because they are developing entirely new ways to generate, store, and use energy.
- Focus on transformational energy projects that can be meaningfully advanced with a small amount of funding over a defined period of time. Our streamlined awards process enables us to act quickly and catalyze cutting-edge areas of energy research.
- Empowers America's energy researchers with funding, technical assistance, and market readiness.



## Office of Technology Transitions (\$14 Million)

### **Mission:**

- Act as the “front door” to the Department of Energy – a key facilitator to bridge connections within the Department and guide the way through the National Laboratory system
- Expand the commercial impact of the DOE’s research and development portfolio to advance the economic, energy, and national security interests of the Nation
- Responsible for developing and overseeing delivery of the DOE strategic vision and goals for technology commercialization and engagement with the business and industrial sectors across the US, such as manufacturing, energy and technology.



RESEARCH

## Oak Ridge Institute for Science & Education (ORISE)

- Dedicated to enabling critical scientific, research, and health initiatives of the DOE and its laboratory system by providing world class expertise in STEM workforce development, scientific and technical reviews, and the evaluation of radiation exposure and environmental contamination

ORISE accomplishes its mission by providing superior, integrated solutions to:

- Recruit and prepare the next generation of our nation's scientific workforce
- Promote sound scientific and technical investment decisions through independent peer reviews
- Facilitate and prepare for the medical management of radiation incidents in the United States and abroad
- Evaluate health outcomes in individuals exposed to chemical and radiological hazards
- Ensure public confidence in environmental cleanup through independent environmental assessments

## U.S. Energy Information Administration (\$130 Million)

- EIA provides a wide range of information and data products covering energy production, stocks, demand, imports, exports, and prices; and prepares analyses and special reports on topics of current interest.



RESEARCH

# Energy Efficiency & Renewable Energy (EERE) (\$3 Billion)



## **Mission:**

- Strong and prosperous America that is powered by clean, affordable, and secure energy.

## **Vision:**

- Create and sustain American leadership in the transition to a global clean energy economy.

## **Goals:**

1. Accelerate the development and adoption of sustainable transportation technologies
2. Increase the generation of electric power from renewable sources
3. Improve the energy efficiency of our homes, buildings, and industries
4. Stimulate the growth of a thriving domestic clean energy manufacturing industry
5. Enable the integration of clean energy into a reliable, resilient, and efficient electricity grid
6. Lead efforts to improve federal sustainability and implementation of clean energy solutions
7. Enable a high-performing, results-driven culture through effective management approaches and processes.

## **Offices of Interest:**

- Advanced Manufacturing (AMO), Building Technologies (BTO), Solar (SETO), Wind (WETO), BioEnergy (BETO), Fuel Cells Technology (FCTO)  
Cross-cut: Energy Storage Grand Challenge

## Office of Science (\$7 Billion)

### **Mission:**

- Deliver scientific discoveries and major scientific tools to transform our understanding of nature and advance the energy, economic, and national security of the United States.

### **Facts:**

- Nation's largest supporter of basic research in the physical sciences
- Steward of the Nation's national laboratories
- Lead federal agency supporting fundamental research for energy production and security

### **Office of Science Six Major Program Offices:**

- Advanced Scientific Computing Research
- Basic Energy Sciences (including Early Career)
- Biological and Environmental Research
- Fusion Energy Sciences
- High Energy Physics and
- Nuclear Physics

### **Major Initiatives**

- Advanced and Sustainable Energy, Artificial Intelligence and Machine Learning
- Genomics, High Performance Computing, Large-scale Scientific Instrumentation, Quantum Information Science



U.S. DEPARTMENT OF  
**ENERGY**

Office of Science



RESEARCH

# Office of Nuclear Energy (\$2 Billion)

## **Mission:**

- Advance nuclear power to meet the nation's energy, environmental, and national security needs
- Guided by three research objectives, NE resolves barriers to technical, cost, safety, security, and proliferation resistance through early-stage research, development, and demonstration to:
  - Enhance the long-term viability and competitiveness of the existing U.S. reactor fleet.
  - Develop an advanced reactor pipeline.
  - Implement and maintain national strategic fuel cycle and supply chain infrastructure.

## **Initiative Areas:**

- Fuel Cycle Technologies
- International Nuclear Energy Policy & Cooperation
- Nuclear Facility Operations
- Advanced Modeling & Simulation
- Nuclear Energy University Program
- Nuclear Energy Enabling Technologies
- Space Power Systems
- Spent Fuel and Waste Disposition
- Tribal Working Group
- Gateway for Accelerated Innovation in Nuclear (GAIN)



## Office of Electricity (\$190 Million)



### **Mission:**

- Leads the Department's efforts to ensure the nation's most critical energy infrastructure is secure and able to recover rapidly from disruptions.

### **Vision:**

- Through a mix of technology and policy solutions and in partnership with the private and public sectors, the Office of Electricity will harness innovation for a stronger, more resilient and reliable North American energy system while maintaining energy independence.

## National Nuclear Security Administration (\$24 Billion)

### **Missions:**

- Maintain the safety, security, and effectiveness of the U.S. nuclear weapons stockpile through application of unparalleled science, technology, engineering, and manufacturing
- Prevent nuclear weapon proliferation and reduce the threat of nuclear and radiological terrorism around the world
- Respond to nuclear and radiological emergencies in the U.S. and abroad
- Provide the U.S. Navy with militarily effective nuclear propulsion plants and ensure their safe, reliable, and long-lived operation



# Department of Energy National Laboratories





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## Get These Resources Involved Early in Your Process:

- Your Pre-Award Administrator (David Ross, Senior Director [dross5@nd.edu](mailto:dross5@nd.edu))
- Your Department Chair (start here if cost sharing is involved, then move to next steps)
- Your Proposal Development Consultants facilitated by Dr. Heather Boyd ([hboyd@nd.edu](mailto:hboyd@nd.edu))
  - Sarah Nerenberg ([peoserv@nd.edu](mailto:peoserv@nd.edu))
  - Yvonne Chang ([peoserv1@nd.edu](mailto:peoserv1@nd.edu))



Contact Jill Pentimonti for any follow-up  
questions

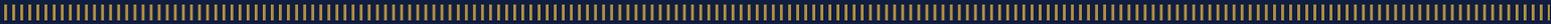
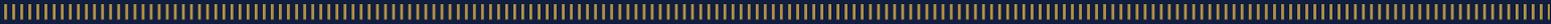
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