



U.S. Department of Energy (DOE)

FOR FY2021,
THE U OF I SYSTEM
REQUESTS
\$7.4 BILLION
FOR THE OFFICE OF
SCIENCE AND
\$450 MILLION
FOR ARPA-E

DOE Office of Science

FY2021 PBR = \$5.8B
FY2020 = \$7.0B
FY2019 = \$6.585B
FY2018 = \$6.260B
FY2017 = \$5.392B
FY2016 = \$5.35B
FY2015 = \$5.071B

ARPA-E

FY2021 PBR = \$0
FY2020 = \$425M
FY2019 = \$366M
FY2018 = \$353M
FY2017 = \$306M
FY2016 = \$291M
FY2015 = \$280M

Appropriations Bill: Energy and Water Development, and Related Agencies

Agency: U.S. Department of Energy

DOE R&D Expenditures FY2019

Urbana: \$66.55 million | UIC: \$6.35 million

*Source: FY2019 NSF HERD Survey

The Department of Energy (DOE) is the largest federal funding agency for research in the physical sciences. Within DOE, the Office of Science provides approximately 47 percent of total federal funding for basic physical sciences research. The U of I System is very competitive when it comes to DOE funding. Our universities partner with DOE national laboratories and with industry to respond to funding opportunities.

DOE-Supported Projects at Urbana-Champaign

The Urbana campus has been one of DOE's top university funding partners. Urbana is regularly among the top 10 institutions nationwide in annual DOE research expenditures.

DOE OFFICE OF SCIENCE

In 2017, DOE [awarded](#) a five-year, \$115M Bioenergy Research Center grant — one of four in the U.S. — to Urbana and 20 partner institutions to establish the **Center for Advanced Bioenergy and Bioproducts Innovation (CABBI)**. Using thematic research into feedstock production, conversion, and sustainability, CABBI will provide sustainable, cost-effective biofuels — and bioproducts.



A \$10.6M project funded by DOE's Office of Science, **Renewable Oil Generated with Ultra-productive Energycane (ROGUE)** uses computer models to guide the engineering of energycane to produce the oil used to create biodiesel and biojet fuel.

Urbana is involved in three of the nation's 36 DOE-funded **Energy Frontier Research Centers**.

OFFICE OF CYBERSECURITY, ENERGY SECURITY, & EMERGENCY RESPONSE (CESER)

With support from DOE CESER and DHS' Security Science & Technology Directorate, the **Cyber Resilient Energy Delivery Consortium (CREDC)** is conducting cutting-edge research to bolster the resiliency of the nation's energy delivery systems.



NATIONAL ENERGY TECHNOLOGY LABORATORY (NETL)

The Prairie Research Institute is a global leader in demonstrating technologies for capture and storage of carbon dioxide to balance our nation's growing energy needs and climate concerns. DOE is funding multiple **CarbonSAFE geologic storage projects** to define and develop regional carbon storage infrastructure. A post-combustion Carbon Dioxide Capture project enables the commercial-scale capture of CO₂ from coal-fired power plants.

ADVANCED RESEARCH PROJECTS AGENCY (ARPA-E)

Through its ARPA-E program, DOE [awarded](#) a \$3.3M grant to a multidisciplinary research team at Urbana to develop a precise system for **measuring greenhouse gas emissions from commercial bioenergy crops** grown in central Illinois.

Also through ARPA-E funding, the **Transportation Energy Resource from Renewable Agriculture (TERRA)/Mobile Energy-Crop Phenotyping Platform (MEPP)** is developing a low-cost, autonomous robot that analyzes biofuel crops during the growing season to pinpoint plants with desirable yield and sustainability traits.

Questions? Contact:
Paul Weinberger
Director of Federal Relations
paulw3@uillinois.edu

Melissa Haas
Associate Director of
Federal Relations
mshaas@uillinois.edu



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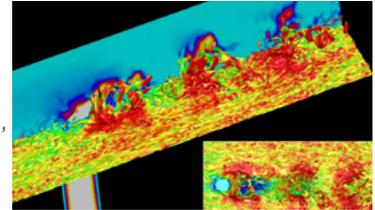
THE NEXT GENERATION OF MATERIALS FOR ENERGY

As part of the Manufacturing USA Initiative, Urbana is a Tier 1 member of the DOE-funded **REMADE Institute**, which focuses on driving down the cost of technologies needed to reuse, recycle, and remanufacture materials such as metals, fibers, polymers, and electronic waste.

Urbana is leading a \$2M project for the **development of next generation steels** aimed at meeting the challenges of hydrogen embrittlement.

DOE NATIONAL NUCLEAR SECURITY ADMINISTRATION (NNSA)

The **Center for Exascale Simulation of Plasma-Coupled Combustion (XPACC)** has a five-year, \$15.7MMu grant from the DOE NNSA's Predictive Science Academic Alliance Program. XPACC is paving the way for cleaner-burning combustors, more reliable and high-performance jet engines, and the development of technologies and workforce to advance extreme-scale computing.



OFFICE OF NUCLEAR ENERGY

The DOE's Office of Nuclear Energy funds R&D projects, infrastructure upgrade grants, fellowships and scholarships under the **Consolidated Innovative Nuclear Research** program. DOE-supported nuclear energy research at Illinois includes enterprise risk management, irradiation assistance for stress in weldments, computer code validation for nuclear power plants, advanced structural materials tolerance, and accident-tolerant nuclear fuels.

ADVANCING COMMERCIAL APPLICATIONS

From 2001-2018, DOE awarded 60 **Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR)** awards to EnterpriseWorks companies for a total of nearly \$24.7 million.

POISED TO LEAD ON QUANTUM

Urbana launched the Illinois Quantum Information Science and Technology Center to revolutionize computing, communication, security, and measurement and sensing through quantum mechanics. Urbana is a core partner in the Chicago Quantum Exchange along with the University of Chicago, Argonne National Laboratory, and Fermi National Accelerator Laboratory.

DOE-Supported Projects at UIC

With a five-year, \$4.2M [grant](#) from the DOE Office of Energy Efficiency & Renewable Energy, UIC is helping industrial, commercial, institutional and utility entities evaluate and install highly efficient **combined heat and power (CHP) technologies**. CHP, also known as cogeneration, is a single system that produces both thermal energy and electricity. CHP has typical operating efficiencies of 65-75% or greater while more conventional and separate systems for electricity and heat operate at approximately 50% efficiency.

UIC and Urbana are partners in the **Joint Center for Energy Storage Research (JCESR)**, a DOE Energy Innovation Hub that was [renewed](#) by the Office of Science in 2018 for another 5 years. JCESR is a major research partnership that integrates national laboratories, universities, and private companies with the mission of overcoming scientific and technical barriers and developing breakthrough energy storage technologies for transportation and the electricity grid.

Two UIC physicists are working with a global research team to plan for the [recently announced](#) DOE-funded **nuclear physics research facility** at Brookhaven National Laboratory, which is expected to be a game-changing resource for the international nuclear physics community.

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